HJR 622 STUDY

CHEASPEAKE BAY PRESERVATION ACT – EXPANSION

Prepared by the
Chesapeake Bay Local Assistance Department

For submission to the
Joint Legislative Audit and Review Commission

November 2001

HJR 622 STUDY
CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

Table of Contents
COMBINED REPORT

V. EFFECTS TO STATE AND LOCAL GOVERNMENTS (continued)

VI. CHANGES TO THE CURRENT PROGRAM

VII. STATE FINANCIAL RESOURCE NEEDS - - STATE GRANTS & COSTS TO THE STATE

APPENDENCES

Background Documents

1 –*Legislative - - - Resolutions, Statutes, Regulations*

1. HJ 622, 2001 Session, *Requesting the Joint Legislative Audit and Review Commission to report on the implementation of the Chesapeake Bay Preservation Act.*
2. HJ 161 Karst Grounwater Monitoring and Protection in the Shenandoah Valley
3. SJ 438 Study: Implementation of local erosion and sediment control programs and local stormwater management programs
4. HJ 771 Department of Health and Department of Environmental Quality regrading management and treatment of waste water
5. SJ 373 Continuing the Commission Studying the Future of Virginia's Environment
6. SB 821 Expansion of the jurisdiction of Chesapeake Bay Preservation Act with fiscal impact statement
7. Chesapeake Bay Watershed Development Policies and Guidelines, Agreement (1987) Report, January 1989, Chesapeake Executive Council
8. Chesapeake Bay 2000 Agreement
9. List of C2K Commitments requiring local government implementation (LGAC)
10. Final Proposal for Program Amendment – Incorporation of the Chesapeake Bay Preservation Act Program into the Virginia Coastal Resource Management Program, 1996.
11. Chesapeake Bay Preservation Act (§ 10.1-2100, et. seq.)
12. Chesapeake Bay Preservation Area Designation and Management Regulations (§ 9 VAC 10-20-10, et. seq.)

2 –*Environmental Reference documents*

1. *Working Together to Protect Streams, Rivers, and the Bay,* CBLAD Brochure, 2001
2. *Virginia's Bay Act Program,* CBLAD Brochure, circa 1992
3. *A Guide to the Bay Act, Virginia's Chesapeake Bay Preservation Bay Act Program*
4. Virginia Nonpoint Source Pollution Management Program, Executive Summary, developed in 1999. (web download)
5. Virginia Nonpoint Source Pollution Management Program, Background
6. Virginia Nonpoint Source Pollution Management Program, Watershed Prioritization
7. *Living With Sinkholes* www.dcr.state.va.us/dnh/lws.htm
8. *Small Streams Contribute Far More Than Previously Thought to Clean Waterways,* Science Daily, April 10, 2001
9. *Control of Nitrogen Export from Watersheds by Headwater Streams*, Science, Vol. 292, April 6, 2001
10. *National Academy of Sciences backs Bay approach to clean water,* Bay Journal September 2001,
11. *Chesapeake Notebook: Protecting the bay on streambanks miles away*, the Capital Newspaper, on-line edition 5/29/01
12. *A man's land, and clear water,* The Baltimore Sun, May 5, 2001
13. *Landowner's lobbying spurs help for streams,* The Baltimore Sun, May 6, 2001
14. *Chesapeake Notebook: Saving the Chesapeake Bay by saving watersheds,* The Capital Newsletter, on-line edition, November 8, 2001

3 – *Outreach Meetings*

1. List of meetings
2. Sample invitation letter (6/1/01)
3. Sample confirmation letter (6/22/01)
4. Copy of PowerPoint presentations
5. Summary notes from first five meetings
6. Notes from individual meetings (7)
    a. PD - 9 Rappahannock-Rapidan RC – July 27, 2001
    b. PD - 5 Roanoke Alleghany Valley RC – July 31, 2001
    c. PD –14 Piedmont PDC – July 31, 2001
    d. PD - 11 Region 2000 RC – August 1, 2001
    e. PD - 6 Central Shenandoah PDC – August 1, 2001
    f. PD –10 Thomas Jefferson PDC – September 6, 2001
    g. PD - 7 Northern Shenandoah Valley RC – September 7, 2001

4 – *Formal Communications, Letters, Resolutions*

1. North Fork Shenandoah River / Holmans Creek Citizens' Watershed Committee, letter of August 31, 2001 to Governor Gilmore III
2. Headwaters SWCD letter, September 10, 2001, - - comments on the extension re duplication, existing successful voluntary programs
3. County of Rockbridge letter, September 12, 2001, - - authority exists, funding, no harm being created

5 – *Statistical Data,*

1. Local Government Jurisdictions in the Potential Expansion Area of Chesapeake Bay Preservation Act – A List of Counties, Cities, Towns, and RC/PRDs
2. Map of Counties and Cities (untitled)
3. Table - - Impaired streams per river basin

6 – *Locality Information*

1. Survey instrument and cover letter
2. Survey Results – Table – Counties
3. Survey Results – Table – Cities and Towns

7 – *Economic and Fiscal Information*

1. Economic Impact Analysis, Virginia Department of Planning and Budget, for changes to 9 VAC 10-20, dated June 21, 2000.
2. CBLAD analysis/table: Budget Implications for Expansion; prepared for the 2001 General Assembly, SB 821
3. CBLAD Organization Chart, as of April 1, 2001
4. Excel Spreadsheet- CBLAD Staffing projections, Scenarios #1 and #2
5. Grant Program History - - Excel Spreadsheet (competitive grants)
6. Annual Report on the Virginia Water Quality Improvement Fund, Point Source Pollution Control, DEQ, January 2001.
7. WQIF Projects list 1998-2001

8 – *Other – Referenced Materials not attached except for covers and tables of content*

1. The State of the Chesapeake Bay, October 1999, Chesapeake Bay Program
2. State of the Bay 2001, Chesapeake Bay Foundation
3. State of Our Rivers Report, For the Commonwealth of Virginia January 2001, Friends of the Rivers of Virginia (FORVA)
4. Virginia Water Quality Assessment, 305(b) Report, August 2000
5. Virginia 1998 303(D) TMDL Priority List and Report, October 1998 DEQ/DCR
6. 2000 Annual Report on Status of Tributary Strategies, Chesapeake Bay Agreement and Water Quality for Virginia's Chesapeake Bay and Tributaries, November 2000, SONR
7. Chesapeake Bay Implementation Grant Workplan for FY 01-02, July 1, 2001 to December 31, 2002, Draft of March 15, 2001, DCR and Grant Award dated July 18, 2001
8. Environmental Program Funding Synopsis (with Chesapeake 2000 Agreement subset) prepared for the Commission on the Future of Virginia's Environment, October 25, 2001, as presented by Secretary of Natural Resources Ronald P Hamm

HJR 622 STUDY: CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

EXECUTIVE SUMMARY

This study was undertaken through a direction of the 2001 General Assembly in the form of HJ 622. The report was prepared by the Chesapeake Bay Local Assistance Department (CBLAD) and presented to the Joint Legislative Audit and Review Commission (JLARC) pursuant to HJ 622. The study and this report address the implications of extending the current Chesapeake Bay Preservation Act, § 10.1-2100 et. seq., and its Regulations to the balance of the Chesapeake Bay Watershed in the Commonwealth of Virginia.

Format and Content: The report consists of six additional chapters to this Executive Summary. The next chapter, Chapter II, sets forth the legislative and regulatory context under which the issue of a proposed expansion arose and must be considered. Of significance, it is pointed out that through the 1987 Bay Agreement, the Commonwealth had made a commitment to apply a Bay Act program throughout the entire Chesapeake Bay Watershed in Virginia.

Chapter III describes the study framework that was used to address the very complex task of identifying and assessing impacts that will occur in the future and which cannot be isolated, i.e. they are a part of a complex system of development and regulations. Of significance is the conclusion that the study is not a typical cost/benefit study since the benefits are discussed as long-term implications for the condition of the environment, particularly the quality of state waters, while the costs relate to the resulting obligations of local and state governmental entities to create and implement the appropriate and necessary programs. To gather input to the study use was made of a locality survey, to assess capacity related to the water quality planning and regulation; seven outreach meetings were held in the proposed Expansion Area; and, an environmental-benefits focus group was used in addition to the basic research of environmental programs and the current Bay Act Program history.

The initial methodology for the study required looking at the overall effect of the water-quality based environmental programs on Virginia's portion of the Bay Watershed through comparison of the Tidewater Area with the proposed Expansion Area. However, operating only with such broad-based information would not be responsive to the

directives in HJ 622. Therefore a more detailed methodology that involved identifying the increment of change that would occur between the present situation (the baseline condition) and the resulting situation once there was an expansion of the Act's geographic coverage was created. The increment of change was then assessed for its effects in terms of environmental benefit and in terms of costs and allocation of resources. In table form, the columns were identified as:

Bay Act Expansion Study – Incremental Change Analysis			
CURRENT SITUATION {The Baseline Condition}	ACTIONS THAT MAY OCCUR {The Increment of change}	BENEFITS	COSTS AND RESOURCES

The items for which an increment of change was identified are listed in Table III-3. The environmental benefits analysis is contained in Chapter IV; the effects on local government in Chapter V; and costs to the state in Chapter VII. Table III-4 provides an abbreviated, key-word summary of the content of those chapters. The key findings are highlighted in later sections of this Executive Summary.

Study Conclusions: Recognizing that HJ 622 called for the identification of the potential need for changes to the current regulations and identification of financial resources needed for an expansion, in addition to the assessment of environmental benefits and costs to government, the study contains several conclusions and suggestions that when brought together form the essence of a plan, or strategy, for proceeding with an expansion program. Those items are put together in the following outline, are expanded upon in the balance of this Executive Summary, and are addressed in detail in the full report.

- Legislative action to apply the goals, objectives, and programs associated with the Chesapeake Bay Preservation Act throughout the Chesapeake Bay Watershed in the Commonwealth is warranted.

- Any such expansion must be undertaken with consideration of the impact upon the operation of local governments, of the fiscal impacts to the Commonwealth, and with the need to have it fit appropriately within the obligations of the Commonwealth per the Chesapeake Bay 2000 Agreement and in a manner compatible with other environmental and water quality protection programs administered and implemented by the State.

- An expansion accommodated simply through the inclusion of new jurisdictions to the definition of "Tidewater Virginia" in § 10.1-2101 will not be efficient or effective.

- An expansion can effectively be accommodated through two avenues. One aspect is adding 13 of the expansion localities (4 counties, 2 cities, and 7 towns) to the current program, the *Chesapeake Bay Preservation Act*. These localities are within the bounds of planning district (regional) commissions that have localities under the Act. The other aspect involves creating new

legislation, such as a *Chesapeake Bay Rivers Act*, for the balance of the expansion area. The new Act would cover 32 counties, 9 cities and 50 towns.

- Upon adoption of new legislation, program development and implementation for the 13 localities added to the current Act would commence immediately and proceed in the same manner as with the original Tidewater localities. For the expansion area, new regulations would need to be created and adopted prior to program development and implementation.

- The new regulations could be created in two separate actions. The first would address the administrative structure and could be tailored after the current program. It would also include the requirements for addressing the protection of the quality of state waters in local comprehensive plans. Early adoption of these regulations would allow localities to proceed with water quality planning efforts while the other aspect of the regulations, that dealing with resource areas and performance criteria, is created and adopted.

- The portion of the new regulations dealing with resource area designations and performance criteria would be developed through a stakeholder process and would specifically address the topology and geology typical to the proposed expansion area. This process would take approximately 18 to 24 months.

- The expansion program could be efficiently and effectively incorporated into the existing CBLAD structure over a two-year period during which both sets of new regulations would be prepared and adopted; and, pilot programs would be applied in the expansion area. The annual additional cost for the phase-in period would be less than $600,000, of which $250,000 could be provided through a shift in the priority of other funding sources such as the Bay Program Implementation Grant.

- The long-term additional annual program cost would approximate $2,500,000. $700,000 of this amount could be accommodated through other than the general fund given a shift in the priority of other funding sources such as the Bay Program Implementation Grant.

Geographic Area and Units of Government:

There are 109 localities in the Virginia portion of the Chesapeake Bay Watershed that are not under the current Bay Act program. Five counties, however, have a minimal land area, minimal population, and do not have any impaired water bodies. The study suggests that any expansion include only the other104 units of local government. The jurisdictional breakdown is 36 counties, 11 cities, and 57 towns with an approximate population of 1,389,400 and a land area of approximately 18,700 square miles. Table I-1 provides a comparison of this data between the Tidewater Area and this Expansion Area.

Within Chapter III, Table III-2 provides a listing of all counties, cities, towns and their respective planning district, or regional, commission.

In reviewing this data, there are sharp distinctions between the Tidewater Area and the proposed Expansion Area. Roughly, the land area under the Act would triple while the affected population would increase by one-third.

TABLE I-1	***Tidewater Area***			***Expansion Area***		
	Number	Population	Land Area sq. mi.	Number	Population	Land Area sq. mi.
Cities	17	1,720,576	1,478	11	282,688	150
Counties	29	2,649,129	8,370	36*	1,106,721	18,551
Towns	38			57		
Local Governments	84	4,369,705	9,848	104*	1,389,409	18,701

* 36 reflects the suggestion that 5 counties that are minimally in the watershed not be included.

To accommodate topographic and geologic matters and to provide for an effective liaison and review program, the study suggests that those localities that are within a planning district commission that is already under the Act be added to the definition of "Tidewater Virginia" contained in § 10.1-2101. These localities are listed in Table I-2. They would be subject to the Act and its Regulations as they exist at the time of expansion and would proceed under the same program development approach that was used for the original Tidewater localities. Table I-3 shows the number and type of localities for the current Act and a new Act.

Table I-2 Potential Localities to be added to the current Chesapeake Bay Act

PDC/RCs already in the Act	*I. Localities*
#15 Richmond Regional PDC	Goochland County, Powhatan County,
#08 Northern Virginia PDC	Loudoun County; Cities of Manassas and Manassas Park; Towns of Hamilton, Hillsboro, Leesburg, Lovettsville, Middleburg, Purcellville, and Round Hill
#19 Crater PDC	Dinwiddie County

Table I-3 Potential Localities per Existing Act and Expansion Act

Type of jurisdiction	Current Assignment		Potential Assignment	
	Tidewater	Expansion	Tidewater	Expansion
Counties	29	36	33	32
Cities	17	11	19	9
Towns	38	57	45	50
Totals	**84**	**104**	**97**	**91**

The ninety-one (91) remaining expansion localities would be included in a new act. The language of the new act could essentially mirror that of the existing act with the exception of its title and the "definition" of the subject localities. The composition of the new Board could be the same at nine (9), thus accommodating the potential for two at-large members.

Figure I-1 is a map showing: the 109 units of government in the watershed but not covered by the current Act, those counties suggested in the report as not to be included, and those localities that are suggested to join others in their planning or regional district under the current Act.

Figure I-1

M A P

[This map is not available in electronic format]

Figures I-2 and I-3 graphically depict the relationship between the Tidewater Area, the potential expansion area, and the balance of the state with regard to land area and population. Figure I-4 depicts the percentage of miles of impaired streams within those areas. The information in Figure I-4 is addressed in the next section of this report.

FIGURE I-2

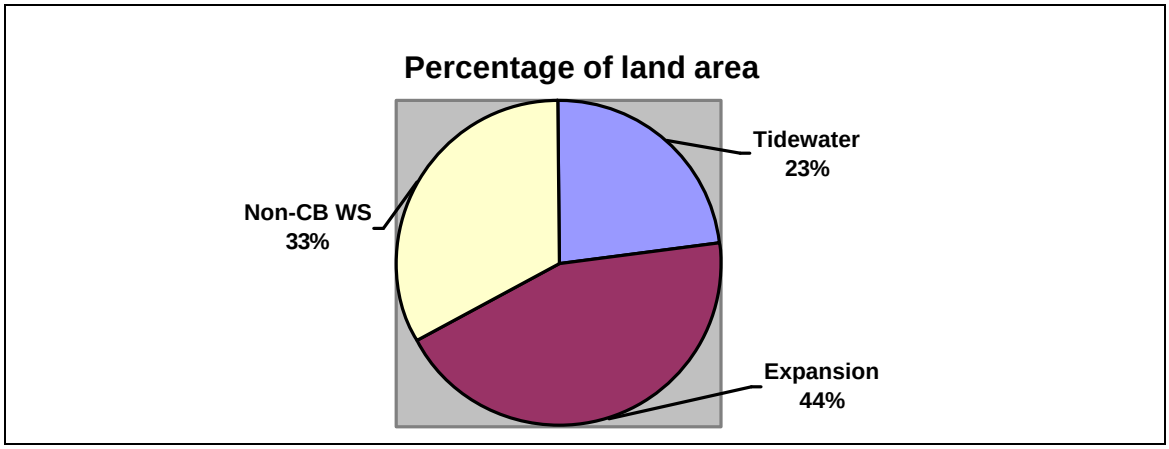


FIGURE I-3

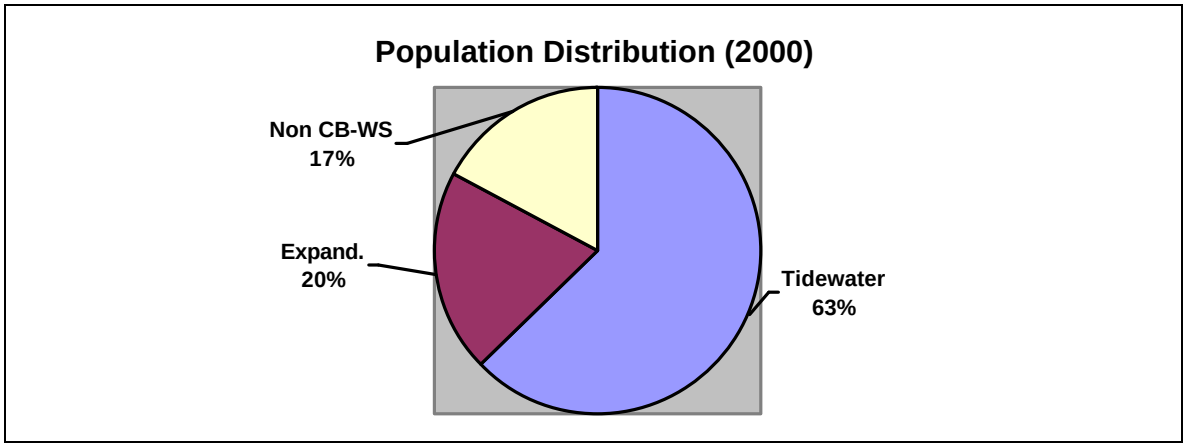
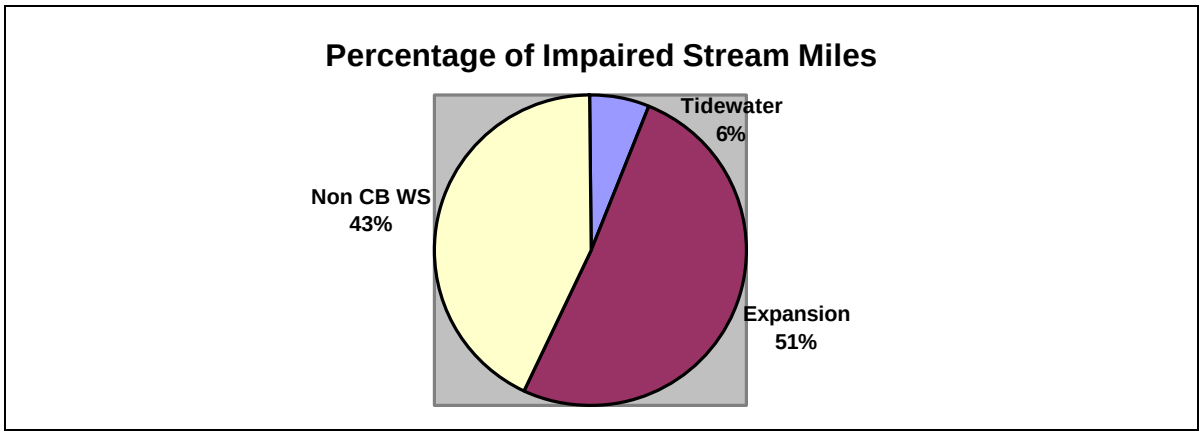


FIGURE I-4



Assessment of the benefits to the environment: The task presented by the directive to "assess the benefits to the environment" is daunting. After all, the Commonwealth has a very comprehensive set of environmental programs that were allocated over $235,992,000 in funds for fiscal year 2001. Of that, more than $35,000,000 is a conservative estimate of the amount directed toward non-point source pollution activities throughout the Commonwealth. Given the magnitude of this existing commitment, the question is not whether there is a benefit to the environment of expanding the current Bay Act program but whether doing so is an effective, efficient, and an appropriate way to protect and enhance the quality of state waters. A perspective on that proposal is graphically illustrated in Figure I-4 which shows that within the Tidewater Virginia area, the number of miles of impaired streams is dramatically less than in the balance of the watershed (the proposed expansion area) or outside the watershed. This fact is even more startling when viewed in concert with Figures I-2 and I-3 that show 2/3^{rds} of the population lives in Tidewater while it has only 1/4th of the land area.

Within Chapter IV, the environmental programs of the state are examined in light of the need to protect the quality of state waters. In conducting the study and reviewing the gathered information, it became apparent that the current Bay Act program presents a unique approach to controlling nonpoint source pollution through its focus upon the land use connection and in the long-term context of comprehensive and land use planning. The benefit of the Bay Act program approach - through which a locality's approach is applied in an integrated and comprehensive framework as opposed to compliance with, or imposition of, a singular requirement - emerges as an underlying principle that needs to be applied in order to achieve desired water quality goals.

In order to focus upon the environmental benefits that might accrue specifically with an expansion of the Act, the analysis in Chapter IV addressed each of the performance criteria contained in the Act. It was noted that a cost/benefit analysis cannot be applied to the effects of the criteria due to the nature of the issues. Also, the need for developing an expansion program in concert with the activities and programs of other agencies (in order to avoid redundancy and inefficiencies) was evident.

Chapter IV also addresses the commitments that the Commonwealth has made through participation in the original Chesapeake Bay Agreement, and its subsequent updates, essentially mandate to the Commonwealth that the goals, purposes, and programs established for the Bay Act be expanded to the balance of the watershed. The original Bay Agreement called for a watershed wide program that focused upon the land use based approach as practiced through the Bay Act. In assessing the year 2000 Bay Agreement, there are commitments specific to concepts of sound land use that are only addressed, in Virginia, through the CBLAD program. Finally, the direction of the overall Bay Program has gone through a recent shift from measuring nutrient loads to the establishment of environmental end-points that support living resources. This concept shifts the need for water quality protection programs to not only deal with the mechanics of erosion and sediment controls, controlling septic discharge, and structural stormwater best management practices but also to include low impact development and better site

design practices. The current Bay Act program advocates for such practices and they are addressed through the program's local implementation review component.

Given that the myriad of state-based environmental programs are applied state-wide and the current Chesapeake Bay Act program applies exclusively to Tidewater Virginia it appears that during its twelve years of existence, it has had a disproportionate and positive effect upon protecting and enhancing the quality of state waters. This fact puts the focus upon the key aspect of the Act – that it is a mandatory as opposed to a voluntary program. Education and incentive based, voluntary programs may be a preferred way to approach many problems; however, in addressing the need to protect the quality of state waters the mandatory program, as implemented through CBLAD, appears to not only be effective in its results but it does so at a direct dollar expense to the Commonwealth that is significantly less than the wealth of voluntary, educational, and short-term programs that exist.

A significant perspective of the issue of expansion, that emerged both through research and testimony, is that of emphasizing the total integrated system of the bay, its tributaries, and the streams that feed the tributaries. This concept is reinforced by numerous articles and reference documents that framed the issue as "saving the Bay by saving watersheds." From that concept, a suggestion was made that if a new program were created for the proposed Expansion Area it should be named in that manner, perhaps, along the lines of the Chesapeake Bay Rivers Act/Program. It was also noted that the language of the current Act addresses the protection of the quality of state waters and does not refer specifically to the Bay except in connection with the rivers that feed it.

Costs and effects to state and local government: Chapter V examines the effects to state and local governments in terms of program development and implementation. Issues pertaining to the costs to local government are addressed only in general terms since the Act carries with it an obligation to provide those resources necessary to carry out and enforce its provisions (§ 10.1-2100.B). The costs to the state are specifically addressed in Chapter VII.

To better understand the potential impacts to localities, a survey relating to the status of their plans and codes was undertaken. The survey instrument and responses are provided in the appendices. Table V-2 provides a summary of the results. In general, the localities in the proposed Expansion Area appear to have comprehensive plans and land development codes that are maintained on a regular basis. The survey also contained some specific questions directed toward innovative and state-of-the-art planning concepts and regulatory approaches. These items included watershed based planning, use of environmental overlays, and built-in code flexibility for designs that would accommodate sensitive environmental features. Localities that have such approaches range from 10%-25% of those who responded. Thus, while the general condition of plans and codes is viewed as being favorable, there appears to be significant work necessary to encourage and promote the type of planning and development practices, in the proposed Expansion Area, as is envisioned by the Commonwealth's commitments in the Chesapeake Bay 2000 Agreement and as is necessary to achieve the Commonwealth's water quality goals.

Thus, there will be additional staffing demands at the local level since a new area of expertise will be required. However, through the proven effectiveness of CBLAD's current local assistance grant and liaison program that work can be accomplished.

Additionally, to get a direct input on the potential effects to localities, seven outreach meetings involving over 90 individuals were held in the proposed Expansion Area. Input from those meetings including items of concern and suggestions for modifying the existing program and for taking different approaches altogether are contained in Chapter V. Chapter V also provides a specific analysis for each of the program components that are necessary to develop and implement a local program that is consistent with the Act and its Regulations. These included such items as identifying the environmentally sensitive areas to which the performance criteria would apply, changes to local codes, compliance with E&SC, stormwater, and agriculture criteria, updating comprehensive plans, and the like.

The is no definitive statement that can be made with respect to the effect upon local government if the Chesapeake Bay Preservation Act is extended to the balance of the Watershed. It is evident from this the information in Chapter V, that the effect upon an individual locality is dependent upon its environmental situation; the amount, type and location of development that is occurring there; the status of its plans and codes; the expertise that the locality has on staff; and other factors. However, it can be definitively stated that through the current program applied in the Tidewater area, compliance with the Act has not created any adverse effect to local government that could not be accommodated or overcome. The key to having a successful overall program is adequate technical assistance, adequate funding, and operating within the comprehensive framework that is provided in the local governmental context of planning and regulations.

It can also be stated that the current program cannot simply be applied to the expansion area by inclusion of the western localities to the Act and have it work in an efficient and effective manner. Besides the environmental differences identified in Chapter IV, there are significant demographic differences between Tidewater and the proposed Expansion Area. The overall character of the areas is different, the development pressures are different, and the capacity to assimilate new programs varies widely between the areas and within the proposed Expansion Area itself.

While the cost to the state for implementation of an expansion is addressed separately, the work undertaken to assess the impact upon local units of government stresses the need to emphasize coordination and eliminate duplication of state programs and efforts. While there are concerns expressed by some in the Tidewater area over issues of duplication and coordination, they are mainly associated with reporting requirements. In the potential expansion area, there was strong sentiment that there are numerous new programs and activities that are overwhelming the localities. The framework created by the Act and its Regulations, including the CBLAD liaison program and network seems to have been quite effective in helping localities to put their water quality planning needs into a coordinated local perspective. Thus, it seems that an expansion of the Act and its

requirement for water quality planning at the local level with state assistance offers a proven way to make the overall state effort more efficient and effective.

Potential need for changes to existing regulations: As this study progressed, it soon became evident that not only would changes need to be made to the performance criteria, but that changes would be necessary to all aspects of the program including its organization. Besides this study, CBLAD was concurrently processing a substantial change to their existing Regulations. Hundreds of comments were received and are contained within a two-volume "response to public comment" document. CBLAD had the opportunity to consider those comments, in addition to the expansion specific testimony gained at the outreach meetings, in exploring the subject of potential changes.

The charge in HJ 622 was to identify the potential need for changes if an expansion were to occur. Tables I-4 through I-6 summarizes the contents of Chapter VI where the potential changes are addressed. Those items pertaining to the designation criteria and the performance standards would be established through the Administrative Procedures Act with a new set of regulations tailored to the proposed Expansion Area. A stakeholder process would be a part of this effort that would take between 18 and 24 months to complete.

Table I-4	***Legislative Matters***
Modification to the existing Chesapeake Bay Preservation Act	*Creation of a new Chesapeake Bay Rivers Act*
• Add 13 localities to the current program	• Modeled after the current Act • Replace the definition of "Tidewater Virginia" with the list of localities in the proposed Expansion Area • Incidental modifications for administrative and technical matters

Table I-5	**New Regulations**
Interim Regulations	***Final Regulations***
• *to be adopted within six months of the effective date of the new Act*	• *to be adopted within 24 months of the effective date of the new Act*
• Establishes the decision-making, administrative, and review processes • Modeled after the current Regulations • Maintain the Board at 9 members and accommodate two at-large members • Establishes the criteria for including the protection of the quality of state waters in local comprehensive plans • Establishes a schedule for local government compliance with bringing comprehensive plans into compliance	• Establishes the criteria for the designation of the resource protection and resource management areas • Establishes the performance criteria • Establishes a schedule for local government compliance with these matters.

Table I-6	**Designation and Performance Criteria**		
Resource Protection Area (RPA) considerations	*Resource Management Area (RMA) considerations*	*Performance Criteria*	
Isolated wetlands Flood plains Farm ponds Steep slopes Buffer criteria	Character of karst topology Wellhead protection Sinkhole considerations	Three general criteria Stormwater criteria E&SC criteria Wastewater (septics) Agriculture Silviculture Wetland permitting	no significant change no significant change consider changes statewide defer to HJ 771 and DOH no significant change no significant change no significant change

As can be gleaned from the above Tables, the task of formally expanding the goals, purposes, and criteria from the current Act is not so much a scientific or technical challenge as it is going through the required processes and addressing issues of - to which land, or features, the resource protection and resource management designations should apply.

The other aspect of developing the overall program is to take into consideration the changes in environmental programs that have occurred since adoption of the original Bay Act and its Regulations. The Commonwealth has instituted several new programs since the late 1980's and early 1990's. It has new obligations with regard to the Bay Agreement and the commitments contained therein. Also, it must consider the impact upon local governments, not just in terms of technical and financial assistance (described in Chapters V and VII) but also in terms of actual, day-to-day, implementation of the program. As stated in § 10.1-2100.B, "local governments have the initiative for planning and implementing" the provisions of the Act. The Commonwealth has the obligation of acting in a supportive role by establishing the criteria and providing the resources necessary to carry out and enforce the Act. A part of this obligation is to ensure that State programs do not result in redundancy and that the requirements imposed by the multiple programs of the State do not burden the administrative capacity of local governments.

In developing the program for the proposed Expansion Area, its relationship to the tributary strategies, the TMDL program, the E&SC program, and VPDES programs along with other activities must be considered. As was suggested at one of the outreach meetings, "weave it, don't stack it".

Needed State financial resources for operations and in the form of local assistance grants: The Department operates two grant programs that provide resources to carry out the program at the local level. These are the Agriculture Plan Assistance Program and the Local Assistance Grant Program. Chapter VII provides historic data on the operation of these two grant programs and projects future needs for an expansion of the Act.

For the purpose of projecting costs associated with the Agriculture Plan program there is no special formula. The demand greatly exceeds the financial resources available to meet

it other than over an extended time period. Thus, it simply comes down to priorities and the availability of resources. For the purpose of projecting implementation costs, the extrapolation method used for the fiscal impact of SB 821 considered a relationship between the number of units of government and the difference in total land area with a resulting annual allocation of $750,000 for farm plan development. While other scenarios could be created, the annual allocation of $750,000 is conservative but reasonable given the great demand that exists.

The local assistance grant program is the major vehicle for the actual development and implementation of the local programs. The amount of funding provided through this vehicle, classified by type of jurisdiction and use is shown in Table I-7.

Table I-7 Allocation of Local Assistance Grants, Fiscal Years 1991-2002

Jurisdictions	*Number*	*Amount*	*I - Dev.*	*I - Imp.*	*II - Dev.*
Counties	245	4,762,922	890,095	3,383,512	489,315
Cities	87	1,782,609	380,370	1,071,034	331,925
Towns	34	470,179	173,314	217,465	79,400
PDCs	85	1,798,984	441,549	748,688	608,749
TOTALS	451	$8,814,694	$1,885,328	$5,420,699	$1,509,389

The historic allocation was analyzed by type of jurisdiction and use and then allocated by a factor relating to the change in the type of jurisdiction between the expansion localities and the Tidewater localities. The resulting long-term, annual allocation was $797,454 which is substantially less than the annual amount of $1,690,393 that was contained in the FIS that was prepared for SB 862.

In addition to the implementation grant programs, Chapter VII addressed the state program funding necessary to effectively and efficiently carryout an expansion. Two scenarios were developed. The additional annual costs for the operations scenario reflecting the program described in this Executive Summary along with the grant programs is shown in Table I-8 for the initial two-year start-up period and in Table I-9 for the sustained program.

Table I-8	**Additional Program Costs, Initial Budget Period**			
Purpose	*Annual Costs*	*General Fund*	*Other Sources*	
Operations	$ 378,715	$ 190,000 1st half of Va Fiscal Year	Consideration of reprioritization of the Bay Program Implementation Grant (EPA)	
Local Assistance Grants	$ 150,000	$150,000	Although other sources may be used on a case-by-case basis, planning should be through the general fund.	
Agriculture Grants	$ 50,000	$ 0	Work in concert with existing programs for Applying Bay Act farm plan concepts in the proposed Expansion Area	

Table I-9	Additional Program Costs, Sustained Program			
Purpose	*Annual Costs*	*General Fund*	*Other Sources*	
Operations	$ 894,251	$ 447,125	50% match to the balance from the Bay Program Implementation Grant (revised priorities)	
Local Assistance Grants	$ 797,454	$797,454	For planning purposes, the total anticipated should be considered as a general fund obligation although it may be supplemented by other sources.	
Agriculture Grants	$ 750,000	$500,000	Work in concert with existing programs for Applying Bay Act farm plan concepts in the proposed Expansion Area	

Within Chapter VII, the potential for offsetting some of the additional costs was examined. This analysis looked at the general fund, the WQIA Fund, the EPA's Bay Program Implementation Grant. The potential offsets that were identified are shown in the above tables.

Table I-10 shows the combination of all the analysis along with the current CBLAD budget, other needs addressed in the study, the one-time costs associated with outfitting new position and the personnel needs.

Table I-10 CBLAD – DEPARTMENT BUDGET PROJECTIONS FOR EXPANSION				
CATEGORY	***Current Budget & Supplemental Needs***	***Initial Estimate for SB 821 Sustained***	***Expansion Scenario Per the Study***	
			First two years [Annual]	***Sustained [Annual]***
Personnel & Operations	1,585,856	3,624,814	1,952,071	2,429,837
Operations Supplement	114,144	114,144	114,144	114,144
Remote Office Ops	0	50,000	12,500	50,000
Competitive Grants	571,962	2,262,355	721,962	1,369,416
Comp Grant Supplement	0	728,158	n/a	n/a
Agricultural Grants	468,500	1,218,500	518,500	1,215,800
Ag Grant Supplement	0	31,500	n/a	n/a
WQ Monitoring Suppl.	150,000	150,000	150,000	150,000
TOTALS	2,890,462	8,179,471	3,469,177	5,329,167
Space/Equip set up (1x)	0	490,000	62,500	232,500
AGENCY MEL				
Appointed	1	1	1	1
Classified	20	49	26	35
TOTALS	21	51	27	36

Conclusion: The recently issued 2001 State of the Bay Report prepared by the Chesapeake Bay Foundation finds that the ecological health of the Bay has declined over the past year for the first time in four years. The report stated that despite efforts to stem the loss of farmland and open space, growth in the watershed was undercutting restoration efforts. While there are individual efforts and programs, (such as the E&SC, Ag-Cost Share BMPs, and stormwater management) they are not all mandatory nor do they realize their maximum efficiency when applied in a piecemeal fashion. The issues of growth and its impact on the environment are complex and comprehensive in nature. A comprehensive program, such as the eleven point (performance criteria) and planning

program, that is consistent with the mandatory provisions of the Chesapeake Bay Preservation Act, and that is implemented by local government concurrent with the impacts of growth and development would be useful in order to adequately address the on-going nature of enhancing and maintaining the quality of the waters of the Commonwealth. Such a program could effectively be applied throughout the entirety of the Chesapeake Bay watershed in order for Virginia to protect water quality, meet federal requirements such as the Clean Water Act, and meet its obligations under the Chesapeake Bay Agreements. Indeed, expansion of the Act program is consistent with the obligations incurred in the 1987 Chesapeake Bay Agreement and with the scope and approach of the commitments in the revised 2000 Agreement.

The Chesapeake Bay Local Assistance Department is pleased to have been able to undertake this study and present its finding so as to further the protection and enhancement of the quality of the waters of the Commonwealth.

HJR 622 STUDY: CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefi ts to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

II. PURPOSE FOR THE STUDY

The Chesapeake Bay Local Assistance Department (CBLAD) is pleased to have been charged with examining the potential impacts and implications associated with a possible expansion of the Commonwealth's Chesapeake Bay Preservation Act (the Act) throughout the Virginia portion of the Chesapeake Bay Watershed. In undertaking this task and presenting this report, CBLAD has been able to address its charge with regard to protection and enhancement of all State waters within the watershed and in context with the myriad of federal, state, and local water quality activities and programs that currently exist. This report not only addresses the potential implications for local government and state agencies but also for advancing the art and science of water quality protection and enhancement throughout the Commonwealth. Thus, regardless of the disposition of the issue that generated the reason for this report, its content will be of benefit as CBLAD continues to refine and enhance the Commonwealth's Bay Act Program and to assist in restoring the water quality of the Chesapeake Bay and its tributaries.

Origin of the study and its status: This study was undertaken through a directive of the 2001 General Assembly. During the 2001 Session, Senator Williams introduced SB 821 calling for an immediate expansion of Act to the balance of the Bay watershed. Concurrently, HJ 622 (Dillard) and SJ 434 (Whipple) were under deliberation. These companion bills called for a Joint Legislative Audit and Review Commission (JLARC) study on the implementation of the Act as it is implemented in Tidewater Virginia. During deliberations on SB 821, questions were raised regarding the costs to local government and the State; what types of changes would be required to the Act's regulations given the different topology and character of the proposed expansion area; and what would be the effects upon local governments and the environment itself.

SB 821 was passed-by-indefinitely (PBI) by the Senate Committee on Agriculture, Conservation, and Natural Resources only after a commitment was made to include a study of the potential expansion as a part of the companion bills calling for the JLARC

study. Accordingly, HJ 622 was amended on the Senate floor by Senator Williams and passed. The language in HJ 622 pertaining to the expansion study is as follows:

> "RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed; (ii) the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001."

The submission of this report to JLARC completes the CBLAD obligation under HJ 622. JLARC is to incorporate the information in this report in its interim report to the Governor and the 2002 General Assembly. CBLAD stands ready and willing to assist the General Assembly with any appropriate follow-up studies or to assist in the preparation of any legislation that might be desired for consideration in the 2002 General Assembly.

Related legislative activities: In addition to HJ 622, there are four other legislative studies that have a direct effect upon a potential expansion of the Act. HJ 161 (2000 Session) directed the State Water Commission to study karst groundwater monitoring and protection in the Shenandoah Valley. The Commission's final findings and recommendations are being prepared concurrent with this (HJ 622) study and will not be available until after this study is submitted to JLARC. This study is of direct relevance since the Act and its Regulations address the identification and protection of potable water supplies in addition to surface flow in tributaries and streams. Please refer to Chapter IV for additional information about karst topology.

HJ 771 established a joint subcommittee to study the organization, structure, regulations, and policies of the Department of Health and the Department of Environmental Quality relating to the management and treatment of wastewater. The resolution cites that "the Commonwealth has more than 750,000 septic drainfields that will fail with age, posing a serious threat to the environment" and other items pertaining to septic systems and alternative technologies thereto. This study is of relevance since one of the eleven performance standards in the Act's Regulations deals with septic system management. The subcommittee's written findings and report are being prepared concurrent with this (HJ 622) study and will not be available until after this study is submitted to JLARC. Please refer to Chapter IV for additional information about septic systems and the Act.

SJ 438 directs the Commission on the Future of Virginia's Environment (SJ 373) to study the implementation of local erosion and sediment control programs and local stormwater management programs. These topics are of relevance since performance standards in the Act's Regulations address local erosion and sediment control programs and stormwater

management programs. In the latter, water quality controls – through best management practices – are required in order to limit off-site pollutant flow to average pre-development conditions. The Commission's written findings and report are being prepared concurrent with this (HJ 622) study and will not be available until after this study is submitted to JLARC. Please refer to Chapter IV for additional information about the erosion and sediment control aspects of the Act's Regulations and for additional information about the stormwater management aspects of the Act's Regulations

SJ 373 continues the Commission Studying the Future of Virginia's Environment. The Commission was initially established in 1996 and has developed an expertise in environmental matters. As noted in SJ 373, the Commission has established subcommittees to receive testimony on "such timely environmental issues as the tributary strategies, the total maximum daily load (TMDL) requirements, land use and growth" and other items which are intricate to the Act and its Regulations. While CBLAD has monitored and participated in the activities of the Commission during this study period, the Commission's written findings and report are being prepared concurrent with this (HJ 622) study and will not be available until after this study is submitted to JLARC.

Water Quality – The Constitutional Charge: Article XI of the Virginia Constitution provides the Commonwealth's overall policy statement dealing with the environment with a specific charge to protect state waters from pollution, impairment, or destruction.

> To the end that the people have clean air, pure water, and the use and enjoyment for creation of adequate public lands, waters and other natural resources, it shall be the policy of the Commonwealth to conserve, develop and utilize its natural resources, its public lands and its historic sites and buildings.
>
> Further, it shall be the Commonwealth's policy to protect its atmosphere, lands and waters from pollution, impairment or destruction for the benefit, enjoyment and general welfare of the people of the Commonwealth. Article IX, Virginia Constitution

Water Quality – Directives and Regulations:

The Federal Clean Water Act establishes, among other items, the basis for water quality standards in Virginia. This Act also provides methodologies for dealing with waterways and water bodies that do not meet the standards. One of these tools is the Total Maximum Daily Loads (TMDL) program. Please refer to Chapter IV, for more information on the TMDL program and its relationship to the Act and its Regulations.

Another component of the Commonwealth's response to federal water quality directives and requirements is its Non-point Source (NPS) Program that operates under the auspices of the Secretary of Natural Resources (SONR). It is a multi-faceted program that sets forth objectives relating to water quality. Many of those objectives are implemented through local government actions that are required elements of the Act and its

Regulations. Please refer to Chapter IV, for a discussion of the interface between the NPS program and the Act and its Regulations.

Water Quality – The Chesapeake Bay Agreement:

The Chesapeake Bay Agreement (Agreement) is a compact made among the states of Virginia, Maryland, Pennsylvania, the District of Columbia, the Environmental Protection Agency, and the Chesapeake Bay Commission. The initial agreement was signed in 1983. In 1987 the Agreement was revised to, among other items, contain a goal to "plan for and manage the adverse environmental effects of human population growth and land development in the Chesapeake Bay Watershed". In support of that goal, the Executive Council adopted *Chesapeake Bay Watershed Development Policies and Guidelines* through an agreement commitment report dated January 1989. The Virginia program adequately addresses the essence of that agreement, i.e. appropriate state requirements, through the performance criteria of the Act's Regulations.

The Executive Council's policies and guidelines were to be applied watershed-wide for all state projects and encouraged for localities. In Virginia that did not occur since the Bay Act affects only the 84 local units of government that are described as Tidewater Virginia. Expansion of the Bay Act to the balance of the watershed would fully implement the provisions of the commitment report in the same manner as for the Tidewater area.

In 2000, the multi-jurisdictional partnership was reaffirmed and the Agreement was substantially revised to incorporate over 80 specific commitments under five major categories. Within the major category of Sound Land Use, the sub-category of Development, Redevelopment and Revitalization contains 13 commitments, the majority of which specifically relate to aspects of Virginia's Act, its Regulations, and the CBLAD work program. As pointed out in Chapter IV, expansion of the Act will provide a mechanism and opportunities for the Commonwealth to meet its obligations with regard to those commitments.

Water Quality – Chesapeake Bay Act and its Regulations:

The Chesapeake Bay Preservation Act (§ 10.1-2100, et. seq.) and the Chesapeake Bay Preservation Area Designation and Management Regulations (§ 9 VAC 10-20-10, et. seq.) is a critical element of Virginia's multifaceted response to the Chesapeake Bay Agreement and is a major component of the overall NPS Program.

The Virginia General Assembly enacted the Chesapeake Bay Preservation Act in 1988. The Act established a cooperative program between state and local government aimed at reducing non-point source pollution. The program created to implement the Act is designed to improve water quality in the Chesapeake Bay and its tributaries by requiring wise resource management practices in the use and development of environmentally

sensitive land features. At the heart of the Act is the idea that land can be used and developed in ways that minimize impact on water quality.

There are several written descriptions of the Act and its Regulations. The following is excerpted from the Final Proposal to Incorporate the Chesapeake Bay Act Program into the Virginia Coastal Resources Management Program, 1996. "Simply stated, the program requires Tidewater localities to prepare inventories of environmentally-sensitive land features, to designate Chesapeake Bay Preservation Areas based upon the findings of that data collection and analyses, and then to amend their local land use management systems, including zoning and subdivision ordinances and comprehensive plans, in order to protect water quality (§ 10.1-2109 of the act). Specifically, local governments must adopt and implement performance criteria to apply within Chesapeake Bay Preservation Areas. The Board, in developing local program requirements, has utilized a resource-based approach which recognizes the differences between various land forms and treats them differently, according to the unique characteristics which they possess. Land use and development are regulated where necessary and in a degree appropriate to the type of land form on which they are located. The Act allows flexibility to meet local needs, both in terms of existing water quality conditions and unique land characteristics and in terms of the existing regulatory system, yet provides uniform standards for use throughout Tidewater to ensure a basic level of consistency among the various local programs." The report provides a very complete description of all aspects of the Bay Act Program. A copy of the full report is provided in the Appendices.

As noted in the preceding materials, the Act and Regulations have a direct interface with other water quality planning programs and activities. This interface is described below and is more fully addressed in Chapter IV. For localities under the Act, the threshold for the statewide erosion and sediment control requirement compliance is reduced from 10,000 square feet of land disturbance to 2,500 square feet, thus capturing many more land disturbing activities. Water quality requirements, including stormwater management, are mandatory in the 84 Tidewater localities, whereas the State's voluntary stormwater management enabling legislation focuses upon control of quantity and is permissive. In addition to the new (2001) non-tidal wetland permit requirements, wetlands connected by surface flow to tributary streams and non-tidal wetlands are protected as Resource Protection Area (RPA) features; and, other wetlands may be included by a locality as a protected RPA feature. Many of the suggested actions contained within the various tributary strategies, particularly those dealing with land use management, are enabled under the Act. Finally, as stated above, it is a critical element of Virginia's multifaceted response to the Chesapeake Bay Agreement especially with regard to the Sound Land Use (4.0) commitments.

Growth and Development in the Virginia portion of the Chesapeake Bay Watershed and Its Implications for Water Quality:

It is not sufficient to just clean-up impaired waters. Continuing growth and land use change creates additional pollution that must be handled appropriately so that gains made

by clean-up efforts are not lost. This point was clearly expressed in a presentation by CBLAD Executive Director to the Senate Committee on Agriculture, Conservation and Natural Resources in a hearing during the 2001 Session. His remarks follow. "In January 1989, the Chesapeake Executive Council published a report on projected Population, Growth and Development in the watershed by the Year 2020. At that time, the study panel projected the population of the entire basin to increase from an estimated 13.6 million in 1990 to 16.2 million in 2020. In fact, today's estimate of the bay watershed population is 15 million people, and the estimate for the year 2020 has grown to a projected 18 million people. More important, in 1989 Virginia's population was estimated to increase by 32%, whereas Maryland's population was expect to grow by only 18%, Pennsylvania's by only 8%, and the District of Columbia's was expected to remain static.

Much of the projected population growth in Virginia was originally expected to occur within the coastal crescent, from Washington D.C. through Richmond to the Hampton Roads region. However, we now expect a significant portion of that growth to also occur in other population centers along the Interstate 81 corridor in the Shenandoah Valley and along major connectors such as U.S. Route 29 between Washington and Lynchburg, along Interstate 66 between Washington and Winchester, and along Interstate 81 from Winchester through Staunton. The Bay Program estimates that the populations of some non-coastal communities, including Loudoun County, Fauquier County, Culpeper County and Greene County, are expected to double by the year 2020.

Furthermore, population growth statistics don't tell the whole story. The Richmond Times-Dispatch reported in the Sunday, January 14, 2000 edition that the latest USDA National Resources Inventory shows that between 1982 and 1997, farm fields and forests were converted to urban, suburban and industrial uses nearly twice as fast as the population grew. The developed portion of Virginia grew from 1.8 million acres in 1982 to 2.6 million acres in 1997 (43% increase). However, during that same period population expanded from 5.5 million people to 6.7 million (23%).

We know that pollution loads can be directly related to increases in impervious surfaces, such as roads, parking lots, sidewalks and rooftops. As impervious surfaces are added in response to the population increase, the load of pollution in storm runoff will increase proportionately. If we expect to maintain the cap on pollution loads, as we have committed to do, then we will have to engage more aggressively in pollution control efforts in all areas where significant growth is expected.

This is even more true in the western part of the Commonwealth, where the steeper topography and karst geology make land development, farming and logging more difficult and the risk of pollution even greater. Soil erosion and sediment pollution is a good example.

Virginia's Tributary Strategies, developed by stakeholders for the James, York and Rappahannock River basins, all identified excess sediment as a major water quality and habitat problem in the tidal portion of these rivers. The Tributary Strategies have set

ambitious goals for reducing the amount of sediment entering the Bay and its tributaries, and maintaining those levels of sediment even in the face of continued population growth and development. In addition, the Chesapeake 2000 Agreement, signed by Governor Gilmore last summer, also commits Virginia to improved management of sediment loads to the Bay as part of our partnership with the other Bay states.

However, according to EPA's computer models, the majority of this sediment comes from areas west of the fall line – areas not currently covered by the Bay Act. If you decide to expand the Bay Act to cover the remaining 65 percent of the land in the watershed, the flow of sediment would be substantially reduced.

Much of the expected increase in pollution loads will be associated with growth and development, one the most effective ways to provide protection is through the kinds of local land use regulations implemented under the Bay Act. The main goal of the program is 'no-net increase' of non-point pollution from land development projects. This is exactly what the cap commitment demands. The program also has goals to reduce current pollution loads from agricultural and silvicultural lands and from redevelopment projects."

The recently issued 2001 State of the Bay Report prepared by the Chesapeake Bay Foundation finds that the ecological health of the Bay has declined over the past year for the first time in four years. The report stated that despite efforts to stem the loss of farmland and open space, growth in the watershed was undercutting restoration efforts. While there are individual efforts and programs, (such as the E&SC, Ag-Cost Share BMPs, and stormwater management) they are not all mandatory nor do they realize their maximum efficiency when applied in a piecemeal manner. The issues of growth are complex and comprehensive in nature. A comprehensive program, such as the eleven point (performance criteria) and planning program, consistent with the mandatory provisions of the Act, and implemented by local government concurrent with the impacts of growth and development would be useful in order to adequately address the on-going nature of enhancing and maintaining the quality of the waters of the Commonwealth.

In addition, such a program could effectively be applied throughout the entirety of the Chesapeake Bay watershed. Such an application is consistent with the obligations incurred in the 1987 Chesapeake Bay Agreement and with the scope and approach of the commitments in the revised 2000 Agreement.

HJR 622 STUDY: CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

III. STUDY FRAMEWORK

The challenge presented in this study is very complex. This is due to the very nature of attempting to identify and assess impacts that will occur in the future and which cannot be isolated i.e. they are a part of a complex system of development and regulations. Development occurs based, primarily, upon private sector decision making; and, with respect to development in a geographic area or over a period of time may, or may not, impact the environmentally sensitive features that are protected by the Act. The Act and its Regulations are just one part of a larger regulatory framework that is administered and implemented at the federal, state, and local level. Further, as becomes evident in this study, there needs to be significant change in the Act's Regulations to appropriately address the proposed Expansion Area. Thus, it is impossible to aggregate the effects of application of the Act upon 104 additional units of government and the geographic areas they encompass. This is not to say that an assessment of the environmental effects and potential effects upon local and state government cannot be made. To do this, however, requires looking at the overall effect of the water-quality based environmental condition of Virginia's portion of the Chesapeake Bay Watershed through comparison of the Tidewater Area, that has been subject to the Act for a decade, with the proposed Expansion Area. Similarly, comparisons can be made between the CBLAD regulatory program for the Tidewater Area and the use of extrapolations to predict the effects for the Expansion Area. The purpose of this Chapter is to describe the methodology that is used for the analysis that is conducted in the following three chapters.

To provide support for the above premise, reference is made to the Virginia Department of Planning and Budget Economic Impact Analysis, dated June 21, 2000, that was prepared for a major revision to the Chesapeake Bay Preservation Area Designation and Management Regulations (§ 9 VAC 10-20-10, et. seq.). In essence, the scope of that analysis covered the applicability of the Regulations, and by direct application, to the Act. Due to the nature of the topic, the assessment of the overall economic impact of the proposed regulation changes is directly applicable to an assessment of the expansion of the Bay Act. Please refer to Economic Impact Analysis, Virginia Department of Planning and Budget, for changes to 9 VAC 10-20, dated June 21, 2000 pages 37 to 40

for the overall economic impact assessment of the proposed regulations. Pertinent aspects of that assessment follow.

- In order to evaluate the overall economic impact of major changes to the regulations (or to expansion of the Act), we would have to know what water quality and other amenities would be with and without the changes and how people would value the difference. We would also need to know what costs would be incurred because of the action. The discussion in the June 21, 2000 EIA makes it quite clear that a numerical measure of the costs and benefits would be quite speculative.

- Each step in the analysis was subject to uncertainty. The behavioral, physical and biological systems that are affected by the terms of the expansion, and revised regulations, are highly complex and many of the interactions between the various components of the system are only partially understood. In addition to uncertainty about the behavioral aspects, there is great uncertainty about the effectiveness of the various effluent control strategies, about the physical distribution of effluents, about the biological consequences of a given temporal and geographic distribution of effluents, and about how much people value the change in biological and physical attributes of the tributary streams that feed the Bay and the Bay itself. Many of these interactions have been measured with some degree of success, and each year, more is learned. However, while the direction of many responses is fairly certain, the magnitudes are still subject to very great uncertainty.

- The DP&B analysis concludes with the following. "We are led to the conclusion that too little is known to estimate how much of a reduction in non-point source emissions will result from the implementation of this regulation. Nor do we have the data necessary to estimate the costs of compliance. Estimating benefits and costs is extremely difficult in this instance because the changes in land-use patterns are so large that significant transfers of wealth are taking place, and it is very difficult to disentangle the wealth transfers from changes in net economic value. Given this uncertainty, CBLAD should make every effort to minimize compliance costs and to encourage private interests to find ways of lowering the costs of protecting the Bay."

The conclusions drawn from the analysis of the proposed changes to the Regulations are applicable to the proposed expansion since expansion of the Act is even more general than are regulations. However, as shown in Chapter IV, it appears that the environmental benefits (water quality) as practiced through adherence to the Bay Act are significant. Finally, as is shown in Chapter VI, CBLAD does recommend several changes in the way

that the current program is administered and applied. This will result in minimizing compliance costs.

Geographic Area and Units of Government: For the purpose of this analysis there are 104 units of local government deemed to be in the expansion area. The jurisdictional breakdown is 36 counties, 11 cities, and 57 towns with an approximate population of 1,389,400 and a land area of approximately 18,700 square miles. Table III-1 provides a comparison of this data between the Tidewater Area and the Expansion Area.

TABLE III-1	***Tidewater Area***			***Expansion Area***		
	Number	Population	Land Area sq. mi.	Number	Population	Land Area sq. mi.
Cities	17	1,720,576	1,478	11	282,688	150
Counties	29	2,649,129	8,370	36*	1,106,721	18,551
Towns	38			57		
Local Governments	84	4,369,705	9,848	104*	1,389,409	18,701

* Technically, there are 41 counties or portions thereof in the Expansion Area; however, 5 of those counties have only a minimal land area, have only a minimal population, and do not have any impaired water bodies. Thus for the purpose of the analytic study, they are not included in the Expansion Area.

In reviewing this data, there are sharp distinctions between the Tidewater Area and the proposed Expansion Area. Roughly, the land area under the Act would triple while the affected population would increase by one-third.

Table III –2 provides a listing of the counties, cities, and towns along with their respective planning district or regional commission. There are 41 counties within the Chesapeake Bay Watershed that are not under the Bay Act. Those shown with an * are partially within the watershed. Five (5) of these (shown with **) have only a small portion of land in the watershed and there are no impaired streams or significant population concentrations therein. Thus, it is suggested that they not be subject to the expansion. This leaves 36 new counties.

There are nine (9) cities in the expansion area and there are two (2) cities in the Tidewater portion of the watershed that were not included under the original program. These two cities should now be subject to the Act, bring the total to eleven (11). There are fifty-seven (57) towns in the expansion area. A few of these towns are close to the watershed boundary and may not be within it. That number is few and will be corrected as the project continues.

There will be ten (10) Planning District or Regional Commissions that will have local government members subject to the Bay Act. Three (3) of these (CPDC, RRPDC, NVPDC) already have members subject to the Bay Act. The New River PDC is identified in the table, but it is suggested that the correlated counties be deleted from the listing, thus the NRPDC would not be included.

TABLE III-2			
II. LOCAL GOVERNMENT JURISDICTIONS IN THE POTENTIAL EXPANSION AREA			
Counties	***Cities***	***Towns***	***RC/PDC***
41 – (5) = 36	*9 + 2(*) = 11*	*57*	*7 new + 3 exist = 10*
Albemarle	Charlottesville	Scottsville	TJPDC - 10
Alleghany	Covington	Clifton Forge Iron Gate	RVARC - 5
Amelia			PPDC - 14
Amherst		Amherst	Region 2000 - 11
Appomattox*		Appomattox Pamplin	Region 2000 - 11
Augusta	Staunton Waynesboro	Craigsville	CSPDC - 6
Bath			CSPDC - 6
Bedford*	Lynchburg		Region 2000 - 11
Botetourt		Buchanan Fincastle Troutfille	RVARC - 5
Buckingham		Dillwyn	PPDC - 14
Campbell*			Region 2000 - 11
Charlotte **			PPDC - 14
Clarke		Berryville Boyce	NSVRC - 7
Craig*		New Castle	RVARC - 5
Culpeper		Culpeper	RRRC - 9
Cumberland			PPDC - 14
Dinwiddie*			CPDC - 19
Fauquier		The Plains Remington	RRRC - 9
Fluvanna		Columbia	TJPDC - 10
Frederick	Winchester	Middletown Stephens City Warrenton	NSVRC - 7
Giles **			New River - 4
Goochland			RRPDC - 15
Greene		Stanardsville	TJPDC - 10
Highland		Monterey	CSPDC - 6
Loudoun		Hamilton Hillsboro Leesburg Lovettsville Middleburg Purcellville Round Hill	NVPDC - 8
Louisa		Louisa Mineral	TJPDC - 10
Lunenburg **			PPDC - 14
Madison		Madison	RRRC - 9
Montgomery **			New River - 4
Nelson			PPDC - 14
Nottoway*		Burkeville Crewe	PPDC - 14

Orange		Gordonsville Orange	RRRC - 9
Page		Luray Stanley	NSVRC - 7
Powhatan			RRPDC - 15
Prince Edward*		Farmville	PPDC - 14
Rappahannock		Washington	RRRC - 9
Roanoke **			RVARC - 5
Rockbridge	Buena Vista Lexington	Glasgow Goshen	CSPDC - 6
Rockingham	Harrisonburg	Bridgewater Broadway Dayton Elkton Grottoes Mount Crawford Timberville	CSPDC - 6
Shenandoah		Edinburg Mount Jackson New Market Toms Brook Woodstock	NSVRC - 7
Warren		Front Royal Shenandoah	NSVRC - 7
[Prince William County which surrounds these cities is already subject to the Bay Act.]	Manassas Manassas Park		NVPDC - 8
Counties	***Cities***	***Towns***	RC/PDC

Methodologies: As noted in the beginning of this Chapter, an assessment of the environmental effects and potential effects upon local and state government requires looking at the overall effect of the water-quality based environmental condition of the Virginia's portion of the Bay Watershed through comparison of the Tidewater Area with the proposed Expansion Area. Similarly, comparisons can be made between the CBLAD regulatory program for the Tidewater Area and the use of extrapolations to predict the effects for the Expansion Area. However, operating only with broad-based information will not produce a result that is responsive to the directives in HJ 622.

To be responsive to the directives in HJ 622, the final methodology involves identifying the increment of change that will occur between the present situation (the baseline condition) and the resulting situation once there is an expansion of the Act's geographic coverage. The increment of change is then addressed for its effects in terms of environmental benefit and in terms of costs and allocation of resources. In table form the columns are identified as:

Bay Act Expansion Study – Incremental Change Analysis			
CURRENT SITUATION {The Baseline Condition}	ACTIONS THAT MAY OCCUR {The Increment of change}	BENEFITS	COSTS AND RESOURCES

The items for which an increment of change was identified are listed in Table III-3. The environmental benefits analysis is contained in Chapter IV; the effects on local government in Chapter V; and costs to the state in Chapter VII. Table III-4 provides an abbreviated, key-word summary of the content of those chapters.

The methodology used for evaluating the environmental benefits in Chapter IV occurs at two levels. The first is the broad-based approach and generally consists of examining the environmental framework for water quality. To assist in this effort, CBLAD convened a focus group to help identify issues and perspectives. The second part examines the anticipated actions and associated increments of change as they pertain to each of the eleven performance criteria that would be applied if the Act and its Regulations, in their current form, were extended to the balance of the watershed. Included in this analysis was the relationship between expansion of the Act and its Regulations and Virginia's obligation to meeting many of the commitments in the Chesapeake Bay 2000 Agreement.

TABLE III-3 ACTIONS ANTICIPATED TO RESULT IN AN INCREMENT OF CHANGE

Program Development	***Land Use & Development Activity***	***Monitoring and Enforcement***	***Board and Department Activities***	***Technical Assistance Program***
Water quality amendments to comp plans	Land use limitations within the RPA	Consideration of water quality items in the plan review process	Increase in the number of Board members	Expansion of environmental data base
Environmental inventories	E&SC at lower threshold	Septic system pump out compliance program	Increase in the number of review committees	Increase to the local assistance grant program
Designation of RPAs	Compliance with the general performance criteria	BMP agreement data base	Increased staffing	In-house expertise in karst topology and associated issues
Designation of RMAs	Preparation of farm plans	Local guidance re buffer management	Additional space and outfitting	Training of locality staff
Prepare and adopt performance criteria	Local authority re silviculture ops	Local enforcement program re violations e.g. buffer	Response to inquiries (daily inquiries)	Revisions/adds to Local Assistance Manual re new features/methods
Land development code amendments	Local stormwater management plans	Local enforcement program	Increased review of site plans & WQIAs	Preparation of guidance unique to the expansion area
Plan of development review process	BMP maintenance program	Processes for waivers, exemptions, modifications, & exceptions		
Watershed based planning	Wetland permitting			
WQIA requirement	WQIA preparation and compliance			

The methodology used for evaluating the local government effects in Chapter V involved identifying the capabilities of local government units in the Expansion Area through the use of a survey, the identification of what local units of government will need to do to comply with the program components (development and implementation), and how similar obligations were accommodated by the Tidewater localities. In addition, outreach meetings were held in each of the planning districts that would be new to the program. Those meetings produced issues, concerns, and ideas that would shape this report's suggestions for changes to the current regulations and implementation program.

The information contained in Chapters IV and V provided the basis for identifying the types of changes in both the current regulations and the current implementation program that should be considered if an expansion is to occur. In addition to that information, CBLAD considered the input received with regard to the currently proposed changes to the existing regulations. The types of changes are addressed in Chapter VI.

The methodology used for evaluating costs to the state, provided in Chapter VII, draws from the ten-year record of program development and implementation and the perceived needs of the affected units of government. Three scenarios are used. The first is the broad-based extrapolation that was presented to the Senate Committee on Agriculture, Conservation and Natural Resources when it considered SB 821. The second scenario addresses the application of the current program but taking into account the significant differences between the units of local government as exists in the Tidewater and Expansion Areas. The third scenario examines a modified program along with the local government differences.

III. Table III-4 Bay Act Expansion Study – Incremental Change Analysis

CURRENT SITUATION "The Baseline Condition"	***ACTIONS THAT MAY OCCUR*** "The Increment of Change"	***BENEFITS*** "To the Environment"	***COST AND RESOURCES*** "To local & state government"
PROGRAM DEVELOPMENT			
Comprehensive plans are required. Water quality considerations are optional.	Local comprehensive plans will need to address water quality per guidance issued by the Board. At a minimum, a review is required. It is likely that local plan amendments will be necessary.	Raises awareness of water quality and development issues. Provides a vehicle for creating and implementing such programs. Results show enhanced water quality.	As necessary, assistance is provided to local governments through grants. See Chapter VII for state costs.
An environmental inventory as an optional aspect in local planning. It is accommodated in varying degrees of specificity	An environmental inventory becomes an essential aspect of the local comprehensive plan. Guidance is issued by the Board.	By its very nature, such environmental considerations are assessed and protected in a manner consistent with local goals and objectives. Results show enhanced environmental quality.	As necessary, assistance is provided to local governments through grants. Also, direct information is provided by the CBLAD GIS function. See Chapter VII for state costs.

No such designation required; a few localities use similar designations for streambed protection.	Designation of Resource Protection Areas (RPA)	Areas at, or near, designated state waters will be identified as sensitive lands requiring protection.	As necessary, assistance is provided to local governments through grants. Also, direct information is provided by the CBLAD GIS function. See Chapter VII for state costs.
No such comprehensive designation exists; however, there are overlays for flood plain protection and scenic corridors.	Designation of Resource Management Areas (RMA)	Areas that have an intrinsic relationship to the quality of State waters will be identified and managed in a comprehensive manner. Results from this type of planning approach show enhanced environmental quality in localities.	As necessary, assistance is provided to local governments through grants. Also, direct information is provided by the CBLAD GIS function. See Chapter VII for state costs.
All the expansion counties and cities have zoning ordinances. There may be a town that does not. Addressing water quality in the local zoning code is permissive. - - All localities have subdivision codes but they do not have to address water quality considerations. - - Performance criteria are an integral part of land development regulations. The degree to which they address water quality and protection vary.	Preparation and adoption of performance criteria consistent with those established in the regulations will need to be drafted, reviewed, adopted, and codified through either incorporation, or reference to, local land development codes (zoning, subdivision, stand-alone ordinance, etc) These include stormwater management programs, septic system maintenance programs, and site development standards.	Each locality will have a regulatory program to protect the quality of state waters . Local zoning codes will address water quality considerations. Local subdivision codes will address water quality considerations. The result of having such regulations show enhanced environmental quality.	As necessary, assistance is provided to local governments through direct technical assistance and through grants. See Chapter VII for state costs.

Basic provisions exist in statutes and nearly all localities have a formal review process.	Land disturbance exceeding 2,500 sq. ft. and proposed development in a RPA is subject to a Plan of Development Review Process	This process ensures that water quality matters are addressed during the planning stages. It also requires that specific performance standards are reviewed and subject to public review	Minimal implications for local government since such a procedure already exists. State costs are limited to technical assistance provided by the liaison program.
Watershed based planning is seldom used. However, increased public awareness and EPA grant – funding programs, along with emphasis in C2K, and the need for TMDL compliance is fostering more such planning.	Watershed based planning is encouraged as an appropriate way to address requirements of the Act.	Watershed based planning is a viable way to address water quality. It, or a similar approach, is essential for de-listing of impaired waters.	This is an alternative method for approaching the planning requirements of the Act. Watershed based planning is a funding priority for CBLAD local assistance grants.
The use of performance based water quality requirements is permissive under the zoning statutes. It is not widely used in the expansion area.	A Water Quality Impact Assessment is required for any proposed development in a RPA. It is permissive throughout the RMA. Localities must prepare minimum criteria	The WQIA establishes a program for evaluation of a development proposal with regard to water quality and hydrologic implications. It identifies appropriate mitigation that must be complied with.	Preparation of the WQIA standards and criteria is a local assistance grant eligible activity. Also, direct technical assistance is available through the liaison program.

LAND USE & DEVELOPMENT			
Land use in (would be) the RPA is controlled by the base zone district.	Within the RPA only water dependent uses are allowed. Maintenance of the buffer and limited passive use is allowed.	The limitation of land use allows for the protection of the associated water feature from pollution that would be generated from such uses and allows the buffer to perform its natural function.	There is no direct cost to local government. The fiscal implications are problematic. Impacts to property owners varying depending upon the situation. See Chapter IV for discussion. The fiscal implications for the state are positive in that the amount of funding required to restore riparian areas and otherwise protect waters are diminished.
E&SC is required for development involving 10,000 sq. ft. or more of land disruption	E&SC program implementation at lower threshold. 2,500 square feet of land disruption in-lieu of 10,000 square feet as required under E&SC law.	More land development is subject to E&SC controls thus reducing the amount of sediment that enters waterways.	E&SC programs are already required in each locality. Thus, the cost is incremental and is related to the amount and type of development activity. There is no additional state costs related to this item.

Regulating landscaping, impervious cover, and grading exist in varying degrees in most localities. In some localities, such as Loudoun and Clarke counties, expansion of the Act would not result in new regulations. In other localities, particularly those with only the minimal code, new regulations will be necessary.	Institution of a local requirement that requires compliance with the general performance criteria (in the regulations) re land disturbance, minimizing impervious cover, & preserving vegetation. In general, the criteria would be established through: * landscaping standards (minimum) * establishing impervious (lot) cover standards * review of grading plans	Through the comprehensive and integrated approach envisioned by compliance with the Act, the natural hydrology of a site can be more closely adhered to resulting in preserving natural environmental functions and reducing the costs of development. Programs to comply with these requirements could run from simple standards to involving low impact development and similar design based development that preserves natural features and the natural hydrologic functions of a site. This results in lower cost maintenance and reduction of the need for structural BMPs.	The cost to local government will vary widely depending upon the type of regulations that are enacted. For most localities, compliance with the general standards will simply be an extension of existing reviews. In other situations, more complex requirements may be applied. For the latter, local assistance funding is available. Also, grant funding has been used for the on-going operation of plan review and site inspection functions. See Chapter VII for the costs to the state.
Except for poultry operations, the preparation of a nutrient management plan is a permissive activity. Such plans are provided by the NRCS and DCR but they only deal with nutrient management. Implementation of such plans is mainly accomplished through the cost-share program.	Preparation of farm plans on specific agricultural sites along with the implementation of the plans is required when an encroachment into the RPA buffer is desired.	The farm plan required under the Act is a comprehensive program that has three components. See Chapter IV for a full explanation.	The farm plan grant program within CBLAD has funded all such plans to-date, thus there is not a direct cost to local governments. See Chapter VII for the costs to the state.

Enforcement of the Silviculture Water Quality Act has historically been after-the-fact and silviculture interests do not comply with the DOF best forestry practices.	The Act provides for local authority regarding silviculture operations as they pertain to protection of the RPA buffer. This authority is exercised pursuant to a MOU, between DOF and CBLAD, that explains how the enforcement program works.	Data from 1999 showed that less than 10% of silviculture operations adhered to Forestry Best Management Practices. In the Tidewater area, upon signing of the MOU, the number of violations has decreased. Less violations relates to enhanced water quality.	There are no significant costs to local government as its involvement with this performance criteria is on a case-by-case basis. There are no significant costs to the state since there are already mechanisms in place for silviculture compliance with its water quality act.
Stormwater management programs are permissive except for those localities subject to Phase I or Phase II VPDES. Also, such programs only need to deal with quantity. The State Stormwater Manual is enabled as a permissive program.	A local stormwater quality management program is required. The minimum effort is the establishment of pollution run-off standards and use of WQ-BMPs. Establishment of local watershed defaults is optional	Enhanced water quality is achieved by meeting the standard that there is no net increase in the pollution that leaves a site. This places a cap upon the ability to further degrade the quality of state waters.	Impact to local governments differ depending upon their existing programs and capacities. Running an on-going stormwater program can vary widely in costs. Some assistance is available through the local assistance grant program for those activities associated with the review of development projects.
There are no requirements in the expansion area for such a program. They exist on a case-by-case basis.	A BMP maintenance program that provides for inventory and tracking of maintenance is required.	These programs provide a mechanism for assuring that BMPs continue to work properly and the pollutant reduction targets are met.	The cost to local government is addressed under local program monitoring (next session)
New permitting requirements for non-tidal wetlands became effective in 2001.	Evidence of Wetland permitting is required.	Through review of the wetland permitting program and the local RPA program, the necessary coordination is provided to insure that inappropriate degradation of state waters does not occur.	This is not a substantial cost to local government in that it provides coordination among different permits and authorities. This item can be viewed as a preventive maintenance benefit.

LOCAL PROGRAM MONITORING AND ENFORCEMENT			
This is not a required review item. However, individual jurisdictions may already provide for it.	Consideration of water quality items, through compliance with the performance standards, in the plan of development review process is required.	By having a program for evaluation of a development proposal with regard to water quality and hydrologic implications, appropriate mitigation is identified and applied; thus, enhancing water quality.	The costs to local government vary widely depending upon current local programs and the type of development that occurs. See Chapter V for information. CBLAD local assistance grants are used to off-set some of these costs on a case-by-case basis. See Chapter VII for costs to the state.
Such programs are instituted only on a sporadic basis, usually when there is a health threat or a specific problem is present.	A program to insure compliance with the septic system pump-out requirement is necessary.	A properly implemented programs results in a reduction of nitrogen loading and the amount of pathogens and toxics that reach state waters. Septic pump-out and repair programs present a primary strategy in the clean-up of streams.	Where they exist, most of the programs involve a cooperative agreement with the local health unit that maintains the data base once it is created by the local government. Except of the on-going program review costs, and dealing with specific situations, this element is not significant.

How well local programs are monitored and enforced varies widely per jurisdiction. This is particularly true when the local programs are "voluntary". Even with mandatory programs, there is a low compliance rate as witnessed with the rate of adequate E&SC programs and the poor rate of compliance with the DOF program	Local monitoring and enforcement programs - - for violations, especially the buffer; for the process for the administration of waivers, exemptions, modifications, and for processing exceptions; for E&SC statute compliance, BMP agreement data base maintenance and the like are subject to review by CBLAD. Because the overall program is mandatory, it is expected that there is dutiful compliance**.**	Adequate enforcement of environmentally based statutes is necessary to achieve the environmental goals that the regulations are to achieve.	As with all components of the overall local program, the cost to local government is dependent upon existing capacities and the type of development that occurs. However, each such component has an impact upon the cumulative costs. See Chapter V for further commentary.
BOARD AND DEPARTMENT ACTIVITIES			
There are currently nine Board members; one for each PDC.	There will be an increase in number of Board members	Not applicable	This will be an incremental operating cost. See Chapter VII.
Currently, the review committees meet quarterly. In the early days of the initial program, monthly meetings were necessary.	There will be an increase in the number of Review Committees and associated meetings	No applicable	This will be an incremental operating cost. See Chapter VII.
CBLAD currently has 21 FTE.	There will be a need for an increase in staff.	Not applicable.	See Chapter VII for details under various scenarios.

Offices are located in the Monroe Building in Richmond. There are space limitations.	There will be a need for additional office space and outfitting	Not applicable	One time costs for office space and outfitting will be necessary. It is anticipated that remote office location(s) will be necessary. See Chapter VII.
There is a liaison program that accommodates such requests.	There will be a need to respond to a greater number of daily inquiries and increased review of site plans and WQIAs	Not applicable	This item will be a part of the general staff increase for the liaison program
TECHNICAL ASSISTANCE PROGRAM			
Most local governments do not access information that is available from various sources. A part of this is simply priorities and another is dependent upon their computer and digital capabilities.	Expansion of the CBLAD environmental data base for determining RPAs (e.g NWI & Topo maps)	Better mapping and inventory of environmental resources results in better planning to accommodate them.	CBLAD provides instruction and access to data downloads along with assistance in the interpretation of data.
Local assistance grants are not available to the expansion area.	Increase to the local assistance grant program scope and funding	It is only through the effective implementation of the paper programs that environmental benefits will occur.	See Chapter VII for the analysis pertaining to the local assistance grant program.
Does not currently exist within CBLAD. There is limited capability in other agencies.	In-house expertise in karst topology and associated issues	The expansion area presents a complex geologic construct. This is recognized by directed studies including HJ 161.	Staffing for this additional expertise in CBLAD is necessary. See Chapter VII.
See previous commentary.	Assistance with local SWM program development	Coordination with DCR efforts; assuring a seamless inclusion of water quality requirements.	Enhanced capacity will be necessary in CBLAD. See Chapter VII.

These items are all basic components of the current (Tidewater) liaison program. They do not presently exist for the expansion area except for individual guidance documents such as for septic systems, sinkhole, and similar items.	* Training of locality staff in CBPA program development and implementation * Revision/additions to the Local Assistance Manual re new features and methods * Preparation of guidance unique to the expansion area	Not directly applicable.	These items will be covered as a part of the general staff increase for the liaison program

HJR 622 STUDY: CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

IV. BENEFITS TO THE ENVIRONMENT

This chapter provides the assessment of the benefits to the environment associated with extending the Chesapeake Bay Preservation Act (the Act) to the balance of the Chesapeake Bay Watershed in Virginia. Initially, the task presented by the directive to "assess the benefits to the environment" appeared daunting. After all, the Commonwealth has a very comprehensive set of environmentally focused programs that were allocated over $235,992,000 in funds for fiscal year 2001. Of that, more than $35,000,000 is a conservative estimate of the amount directed toward non-point source pollution activities throughout the Commonwealth. In light of the magnitude of the existing commitment to protecting the quality of state waters, instead of assessing the benefits to the environment of expanding the concept of water quality protection which is the goal of the current Bay Act program, the study focuses more on the specifics of the Bay Act program's performance criteria and method of approach. In this way the assessment can be made that if expanding the territory under the Act is an effective, efficient, and appropriate way to protect and enhance the quality of state waters.

In order to focus upon the environmental benefits that might accrue specifically with the expansion of the Act, the content of this chapter addresses three areas. The first is the broad area of environmental protection as it relates to water quality. In essence, this material provides the framework for the analysis that occurs in the second part. The second part addresses each of the performance criteria contained in the Act and its Regulations along with the administrative activities that have an impact upon the environment. The third part of this chapter addresses the potential expansion with regard to the Chesapeake Bay 2000 Agreement.

The protection of the quality of state waters: There is a wealth of information that addresses this subject. The Chesapeake Bay Local Assistance Department (CBLAD) has issued such descriptive material as it specifically pertains to the Act. These include "*A Guide to the Bay Act*", the brochure "*Virginia's Bay Act Program*", and the recently published "*Working Together to Protect streams, Rivers, and the Bay*". A copy of each is contained in the appendices.

A complete description of the manner in which Virginia addresses the protection of the quality of state waters is found in the documentation that comprises the *Virginia Nonpoint Source Pollution Management Program.* This material is available in reports, is on the Department of Conservation and Recreation (DCR) website, and pertinent excerpts are included in the appendices to this study. In the material dealing with watershed prioritization, the following excerpts describe the relationship between water quality and land use. "Water quality degradation can result when polluted runoff from land use activities such as agriculture, forestry, and construction and development is introduced into surface and groundwater. These impacts can be characterized and addressed within a given watershed by assessing chemical, biological and physical attributes. Therefore, Virginia's pollution control efforts have to be targeted toward addressing sources of pollution on a watershed basis." "Commercial and residential development of land as well as agricultural and other land uses may cause the impairment of state waters through nonpoint source pollution. In the exercise of their authority to control land use and development, it is the responsibility of counties, cities and towns to consider the protection of all bays, lakes, rivers, streams, creeks, and other state waters from nonpoint source pollution. The exercise of environmental stewardship by individuals is necessary to protect state waters from nonpoint source pollution."

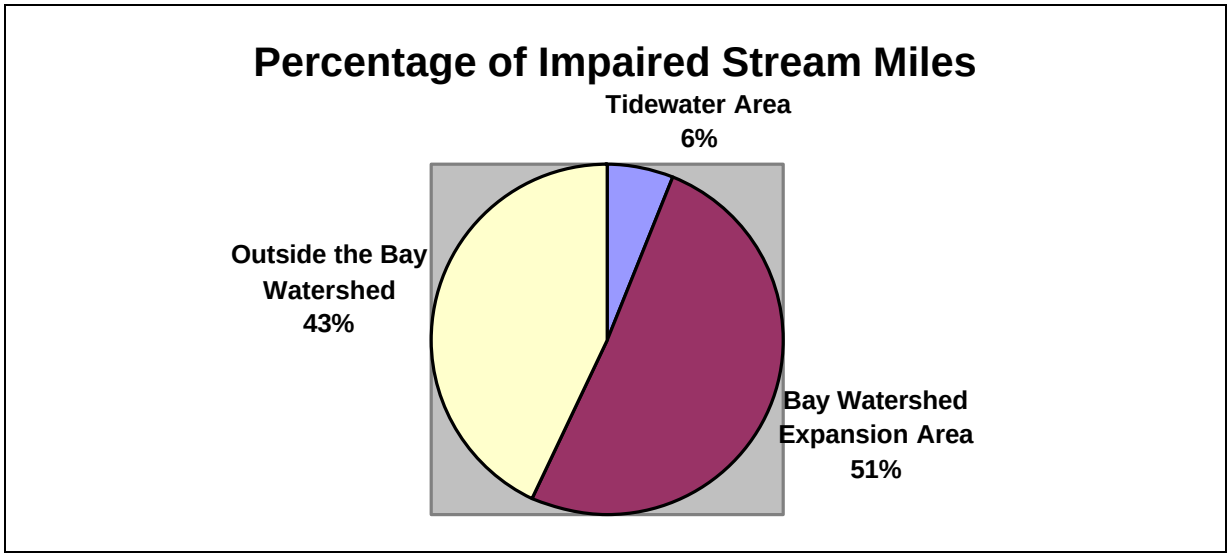
There are various approaches being taken in Virginia to address nonpoint source pollution. Most of the approaches are considered as voluntary. Under this category there is participation in the Bay Program and activities to meet its commitments, the tributary strategy program, the watershed forum and roundtable program administered by DCR, the stormwater management program, and various educational programs and studies undertaken primarily through grants. Other programs are mandatory. These include the total maximum daily load (TMDL) program that is tied to requirements of the federal Clean Water Act, the Erosion and Sediment Control program (E&SC), and the Bay Act program (i.e. the CBLAD program).

The Bay Act program was also Virginia's initial response to the 1987 Bay Agreement. It is a program of mandatory compliance regarding the relationship of land development and the protection of the quality of state waters. It not only provides for the protection of water quality during land disturbance but long-term protection through the establishment and/or maintenance of permanent buffers and water quality best management practices. The E&SC program deals with erosion control during construction and not with long-term impacts.

The next section of this chapter provides a brief description of the TMDL program within which there is a priority system for addressing watersheds that have needs to be addressed. The composite map [Figure 3.4-16, 305(b) Report, 2000], affixed to the end of this chapter, shows a far greater number of high ranking watersheds in the proposed expansion area and outside the Bay Watershed as opposed to the Tidewater Area where the Bay Act program has been in effect for twelve years. Figure IV-1 shows the relationship of miles of impaired streams among these three areas of the Commonwealth. When considering the relative percent of land (Figure V-1) and relative amount of population (Figure V-2) among the three areas, it appears that the existence of the

mandatory Bay Act program with its requirements for local controls has had a significant impact upon protecting, and enhancing, the quality of state waters.

Figure IV-1



<u>Environmental Framework</u>: The concluding statement in The Primary Problem portion of the Save Our Rivers Report reads "The majority of the pollution in the Chesapeake Bay comes directly from the rivers and streams in the watersheds that empty into the bay. **To save the bay, therefore, we must also save the rivers!**" This statement clearly emphasizes that any evaluation of a program that is directed toward protection of the Chesapeake Bay must deal with the total integrated system of the bay, its tributaries, and the streams that feed the tributaries. This concept is reinforced by numerous articles and reference documents, examined for this study, that frame the issue as "saving the Bay by saving watersheds." With that concept in mind, a suggestion was made during the course of the study that if a new program were created for the proposed Expansion Area it should be along the lines of "The Chesapeake Bay Rivers Act/Program." It was also noted that the language of the current Act addresses the protection of the quality of state waters and does not refer specifically to the Bay except in connection with the rivers that feed it.

The following subsections of this chapter highlight the framework that exists in the Commonwealth for protection and enhancement of the water of the state. It is not the intent of this material to be totally descriptive of the referenced programs, rather it is meant to provide an overview of the activities that exist. Also, rather than providing extensive text, reference is made to source documents, and excerpts are included in the appendices to this report.

<u>Virginia's Nonpoint Source Management Program (VNSMP):</u> As noted in Chapter Two, the Clean Water Act establishes, among other items, the basis for water quality standards in Virginia. Section 319 of the Act requires states to assess their state waters and identify those that are adversely affected by nonpoint sources of pollution. The DCR website

(www.dcr.state.va.us/sw/docs) describes *Virginia's Nonpoint Source Management Program*. A copy of the *Program Background* section in included in the appendices.

Tributary Strategies: The tributary strategies are an approach that has been used in the NPS program for the past ten years to address the issue of protecting the Bay by reducing the nutrient flow from streams, to tributaries, to the Bay. A significant part of these plans deal with point-source pollution. Tributary strategy plans were created for seven water basins. During the course of their development, the influence of sediments has become more apparent and some of the tributary strategies are directed toward sediment control. Both the VNSMP and the Secretary of Natural Resources 2001 Report on implementation of the Bay Programs 2000 Agreement commitments provide current descriptions and status reports on the tributary strategy program. The Water Quality Improvement Act's Fund (WQIF) is the principal tool for funding and implementing the conservation practices identified in the strategies. While significant funding was provided in the early years of the fund, only minimal funding was provided for fiscal year 2001 and in all the years the majority of the funding went to point source pollution control activities.

In most of the strategies the focus for non-point pollution was upon agricultural best management practices and agricultural nutrient management planning. While that emphasis appeared adequate to help reduce nutrient loading, the next challenge had to deal with increased NPS associated with development practices. In some parts of the proposed Expansion Area there was concern with the implications of maintaining the "cap". In response, DCR instituted "roundtable" programs in the Shenandoah and Potomac watersheds. In other areas, "forums" have been created as a part of a watershed planning initiative.

In the outreach meetings, held for this study, there was frequent comment about confusion associated with the tributary strategy program. This was attributed, in part, to the lack of funding and implementation, but also to a shift in the Bay Program goals from nutrient reduction to environmental end-points (see later subsection re this change). While voluntary and education-based programs as addressed in the tributary strategies and as being carried-out through roundtables and forums are laudable, it has always been acknowledged that the failure of such efforts to actually be reflected in water quality improvement and maintenance would probably lead to mandatory programs. Such an outcome is becoming evident as the Commonwealth is working under federal mandates in the TMDL program. Given the apparent success of the Bay Act program's approach along with the acknowledgement that maintaining the "cap" is a main challenge of the NPS program, it appears that expansion of the Bay Act program is appropriate, logical, cost effective and may become inevitable.

Water Quality Improvement Act Fund: As stated above, the Water Quality Improvement Act's Fund (WQIF) is the principal tool for funding and implementing the conservation practices identified in the strategies. Information on the WQIF is available on the web at www.dcr.state.va.us/sw/wqia.htm. The following two paragraphs are from the web-site description of the Act and its Fund.

"The purpose of the Virginia Water Quality Improvement Act of 1997 (WQIA) is to restore and improve the quality of state waters and to protect them from impairment and destruction for the benefit of current and future citizens of the Commonwealth of Virginia (Section 10.1-2118 of the Code of Virginia). Because this is a shared responsibility among state and local governments and individuals, the Water Quality Improvement Fund (WQIF) was created. The purpose of the fund is to provide water quality improvement grants to local governments, soil and water conservation districts and individuals for point and nonpoint source pollution prevention, reduction and control programs (Section 10.1-2128.B. of the Code of Virginia).

A primary objective of WQIF is to fund grants that will reduce the flow of excess nitrogen and phosphorus into the Chesapeake Bay through the implementation of the tributary strategies. The Virginia Department of Environmental Quality (DEQ) is responsible for administering point source grants, and the Virginia Department of Conservation and Recreation (DCR) administers nonpoint source grants."

The FY 2001-02 biennium budget included a $10.3 million General Fund appropriation for the WQIF Cooperative Point Source Program, plus $2.7 million in reallocated interest from the Fund. Therefore, a total of $13 million in funds was made available for point source nutrient reduction projects in the Chesapeake Bay drainage. The amount of funding that is directed toward NPS projects is relatively small compared to the total allocation that has been made to the WQIF. Table IV-1 shows the allocation for NPS projects over the life of the WQIF along with the appropriations for the point source program.

Table IV-1 WQIA (NPS) Project Fund Allocations

Fiscal Year	***Number of Awards***			***Funded Amount***			**Point Program** ***Appropriations*** *(does not include interest)*
	Ches Bay	***Southern***	***Total***	***Ches Bay***	***Southern***	***Total***	
1998	16	18	34	$1,037,458	$1,527,975	$2,565,433	$10,000,000
1999	26	6	32	$2,825,000	$ 500,000	$3,325,000	$37,100,000
2000	21	13	34	$1,522,000	$1,000,000	$2,522,000	$25,240,000
2001	17	15	32	$1,000,000	$1,000,000	$2,000,000	$10,300,000

Figures IV-2 and IV-3 show the allocation of the WQIA NPS Project funding within the Chesapeake Bay Watershed for fiscal years 1998 and 2001 broken into general categories. The categories are: Septic Systems (Septic), Stormwater management and projects (STMW), Mined Land Reclamation (MLR), Watershed Restoration (WSR), Streambed Stabilization (Stream S), and Agriculture (Ag) including poultry programs. The allocation for each year was approximately the same with $1,037,458 in 1998 and $1,000,000 in 2001.

Figure IV-2

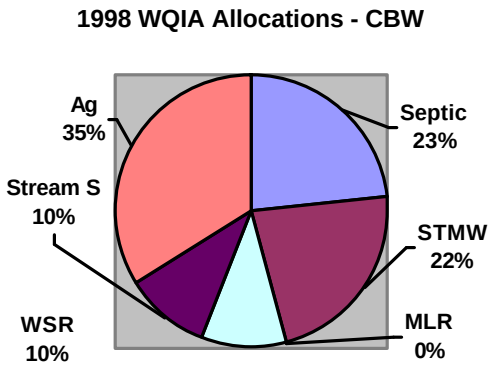
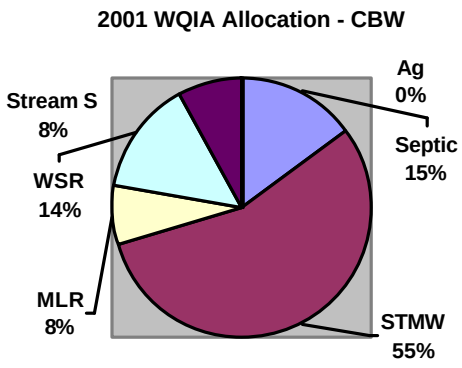


Figure IV-3



The distribution of the grant awards has matured along with the program with the 2001 allocations reflecting the types of projects identified in the tributary strategies minus the agriculture component. However, as can be seen in Table IV-1, the amount of funding is not great. Given that the voluntary tributary strategies program is highly dependent upon the WQIF for implementation and given that the funding has been limited (there is no dedicated funding source other than 10% of budget surpluses, when they exist), it should be re-examined in its role as being a major approach in protecting the quality of state waters.

Stormwater management programs - - In general there are four types of stormwater management programs in the Commonwealth. These are programs associated with the mandatory National Pollutant Discharge Elimination System (NPDES), those mandated under the Bay Act and its Regulations, and optional/voluntary programs developed under the Virginia Stormwater Management Law (§ 10.1-603.3) (VSML), and individual programs developed by localities to meet their own needs and adopted under general enabling legislation. The locality survey relates that 29% of the expansion counties have some sort of a stormwater management program with about 50% of those addressing water quality. The corresponding figures for cities is 55% and 100%; and for towns, 36% and 75%. There are 11 Phase I, NPDES localities. There are 43 "automatically" designated and 10 "potentially" designated Phase II NPDES localities. All of the 84 localities categorized as "Tidewater Virginia" have stormwater management programs that address the water quality requirements of the Bay Act. There are only five localities outside the Tidewater Area that have opted to incorporate stormwater management under the VSML.

The federal Clean Water Act enables the U.S. Environmental Protection Agency to authorize the states to implement certain EPA responsibilities. One of these responsibilities is the authority to issue National Pollutant Discharge Elimination System

permits. EPA has authorized Virginia to issue NPDES permits. These permits, when issued by Virginia, are called Virginia Pollutant Discharge Elimination System permits. These permits carry the weight of both federal and state laws and regulations, and are enforceable under both state and federal authority.

Under the VPDES Stormwater Regulations, the local stormwater programs in municipalities subject to Phase II compliance must satisfy six minimum control measures. The six minimum control measures are:

- Public education and outreach of stormwater impacts
- Public involvement/participation
- Illicit Discharge Detection and Elimination
- Construction site stormwater runoff control
- Post-construction stormwater management in new development and redevelopment
- Pollution prevention/good housekeeping for municipal services

The local Bay Act Programs fulfill the requirement for post-construction stormwater management and also fulfill the construction site stormwater runoff as a part of E&SC performance criteria. The CBLAD program has also been effective in providing resources and guidance in the components dealing with public involvement, education and outreach.

However, a locality operating under the VPDES program does not necessarily meet the requirements of the Act and its Regulations. The VPDES MS4 requirements and the CBPA pollutant removal requirements are not, currently, interchangeable. While they may require similar management practices, the VPDES MS4 permit requirements affect only MS4's within Urban Areas as designated by the census, and the CBPA water quality requirements affect only Chesapeake Bay Preservation Areas. While there may be overlaps between these areas, they are two distinct and separate overlays that many localities have kept as such. The VPDES MS4 program a flexible program based on a wide variety of BMP options that localities may choose to implement. However, the lack of definitive performance requirements in the VPDES program makes a broad programmatic determination of equivalency impossible.

If a locality chooses to implement water quality criteria which accomplish the same desired pollutant reduction through a vehicle other than their Chesapeake Bay Preservation Act program, such as a VPDES MS4 program, then they are allowed to do so provided the Board has reviewed such a request and found them to be implementing equivalent measures to what is minimally required by the Chesapeake Bay Preservation Act. Within Tidewater several localities have adopted comprehensive revisions of their stormwater programs resulting in municipal regional stormwater programs that provide equivalent water quality protection through a different control approach than on-site BMPs. This is encouraged and the language revisions in the currently proposed changes to the Regulations are intended to be supportive of such efforts. The equivalency provision is not intended to be extended to VPDES construction general permits, as the

statewide general construction permit do not, in practice, require that permittees address post-construction stormwater pollutant loadings through the application of stormwater management Best Management Practices.

Total Maximum Daily Load(TMDL) Program: As with the other programs, there is a wealth of information on the TMDL program both on federal (EPA) and state (DEQ) websites. The following brief description of the organization of the Virginia programs is from the DEQ TMDL website, http://www.deq.state.va.us/tmdl/backgr.html.

" DCR is authorized to administer Virginia's nonpoint source pollution reduction programs in accordance with §10.1-104.1 of the Code of Virginia and §319 of the Clean Water Act. EPA is requiring that much of the §319 grant monies be used for the development of TMDLs. Because of the magnitude of the nonpoint source component in the TMDL process, DCR is a major participant the TMDL process. DEQ and DCR have signed a Memorandum of Understanding agreeing to a cooperative effort in the TMDL process including Implementation Plan development. Specifically, DCR agreed to assume responsibility for the nonpoint source component of all TMDLs, with the exception of mineral extraction, including the final allocations. This includes those TMDLs contracted by DEQ. Also, DCR agreed to present the nonpoint source component of the TMDLs in the public forums. Another major role DCR has in the TMDL process is the awarding and managing the contractual services for the development of TMDLs related to nonpoint sources."

A first step in the overall TMDL program process is development of a list of "impaired" water bodies. This list exists in the 303(D) TMDL Priority List and Report prepared by DEQ and DCR. The reports that were prepared received public comment to the effect that they were not easily understood. To address this problem, Friends of the Rivers of Virginia (FORVA) prepared a more user-friendly report, the *State of Our Rivers Report, for the Commonwealth of Virginia, January 2001*. The FORVA report identifies the TMDP program as a powerful tool and when "used properly, TMDLs can play a critical role in the battle against water pollution problems."

Another report is the *Nonpoint Source Assessment Report* prepared by DCR. Among other information it provides rankings that are used to direct implementation of NPS control programs as well as cost-share and Section 319 funding to the highest priority watersheds - watersheds with the greatest pollution potential (*Virginia Nonpoint Source Pollution Management Program, Background Document*). Overall, the greatest number of high priority TMDL watersheds are in the proposed Expansion Area. While the Bay Act Program is cited in the NPSPMP report as one of the strategies for meeting TMDL standards, it is not applied in those western watersheds. The expansion of the Act to those watersheds becomes even more of a necessity when it is acknowledged that the current thrust of TMDLs focuses upon agricultural pollution sources and do not address how to address long-term mitigation for NPS after there is a transition in land use from agriculture to development. Perhaps the fact that the Bay Act program has been in effect for twelve years and does address such matters is one of the reasons that the Tidewater

Area does not have a great number of high priority watersheds. Also, as shown in Figure IV-1, the number of miles of impaired streams in the Tidewater Area is significantly less that in the Expansion Area even though there is a significantly higher degree of population concentration and man-made activity that contributes to nonpoint source pollution.

The Role of Headwaters: During the course of this study, information about the role of headwaters in nutrient removal was published in Science, Vol. 292, April 6, 2001 in the article *Control of Nitrogen Export from Watersheds by Headwater Streams*. The general conclusion of the study was that smaller streams remove more nutrients such as nitrogen from water than do their larger counterparts. This new focus upon the relationship between the size of a stream and how rapidly that stream removes nutrients presents another dimension to the NPS issue – one that is not addressed in existing NPS programs with the exception of the Bay Act program. Currently proposed changes in the Regulations refine the designation criteria as it applies to streams to include all streams with perennial flow. With this change, application of the Bay Act program to the balance of the Chesapeake Bay watershed, where the headwaters exist, should have a significant impact upon maintaining long term water quality especially as those lands become subject to development.

Excerpt from *Control of Nitrogen Export from Watersheds by Headwater Streams*, Science, Vol. 292, April 6, 2001

"A comparative N-tracer study of nitrogen dynamics in headwater streams from biomes throughout North American demonstrates that streams exert control over nutrient exports to rivers, lakes, and estuaries. The most rapid update and transformation of inorganic nitrogen occurred in the smallest streams. . . Despite low ammonium concentration in stream water, nitrification rates were high, indicating that small streams are potentially important sources of atmospheric nitrous oxide. During seasons of high biological activity, the reaches of head-water streams typically export downstream less than half of the input of dissolved inorganic nitrogen from their watersheds."

Flood plains and water quality protection: Historically flood plain regulations have focused upon minimizing damage to property that is built in flood plains. This was commonly accomplished by insuring structures were built higher than the level of inundation. This approach is still the major, if not the only, function of flood plain ordinances in most localities. An adverse consequence of this approach is that of increasing the velocity of flow and resulting damage to streambeds. Streambed damage is often corrected through structural devices that inhibit overland sheet flow and result in channelization of stormwater and the direct deposition of pollutants into the streams. Thus, the historic approach has resulted in increased sedimentation and interruption of historic flow through natural filters.

There is now more focus upon treating flood plains in a manner that protects its hydrologic function instead of only addressing damage control. This concept is encouraged by CBLAD in its review of local comprehensive plans in which, pursuant to the requirements imposed by the Board, the treatment of flood plains must be addressed since they are a component of the resource management area designation.

In the proposed Expansion Area, the characteristics of flood plains are substantial different from many of the Tidewater localities where flood plains are tidal influenced. The filtration aspect of the RPA buffer applies with respect to those streams that are in steeper terrain and help with minimizing the adverse impacts associated with development in flood plains. With valley streams in the proposed Expansion Area, there is a need to look at the flood plain as a RPA feature since in those situations the adverse impacts described above are most likely to occur.

The Bay Agreement and New Perspectives on Water Quality: As stated in the Virginia Nonpoint Source Pollution Management Program, Background Document, the "federal Chesapeake Bay Program is another vital component of Virginia's Nonpoint Source Pollution Management Program." The existing Bay Act program is Virginia's direct response to that federal program. However, the federal program encompasses all of the watershed whereas, the Virginia Bay Act program only applies to the those localities defined as Tidewater Virginia and which, essentially lay along, and to the east of, the I-95 corridor, North of Petersburg.

Virginia's response to the 1987 Bay Agreement commitment for a program that addresses the relationship between land use and water quality is the Chesapeake Bay Local Assistance Act, its Regulations, and the program operated by CBLAD. The Regulations and CBLAD program are based upon guidance issued by the federal program's executive council, except for the fact that it does not cover the entire watershed. Expansion of the Act would fulfill that initial commitment.

The 1987 Bay Agreement also established a numerical nutrient reduction goal. At that time, the numerical goal became a driving force in the overall program and provided the impetus for activities such as the tributary strategies described previously. The Department of Conservation and Recreation, as the designated recipient of federal nonpoint source grants for the state, has also taken on the role of coordinating Bay Agreement commitment activities. This includes administering the approximately $2,500,000 annual Bay Agreement Implementation Grant.

In 2000 a new agreement was executed – *Chesapeake 2000: A Watershed Partnership* (*C2K*). It built upon the 1987 Agreement and became increasingly complicated as it creates direct linkage to the TMDL aspect of the Clean Water Act (see previous discussions). It is anticipated that the approach adopted in *C2K* will eliminate the need to establish TMDLs for the Bay and the estuarine portions of its tributaries. *C2K* also moves into major new areas with the addition of a large number of commitments that are directed toward minimizing the negative effects of regional growth and development.

Table IV-2 lists those commitments in the Chesapeake Bay 2000 Agreement that have direct applicability in the proposed Expansion Area. Many reflect the type of work that is accomplished under the current Bay Act program operated by CBLAD. Thus, expansion of the Act will greatly assist in meeting those commitments, particularly where they apply to category 4, sound land use. As discussed in Chapter VII, the federal financial

resources that are provided to Commonwealth to help in meeting the commitments could assist in meeting the costs of the expansion through a reallocation of priorities.

With *C2K* the measure of success has shifted from the nutrient reduction numerical goals to environmental end points. This also signals a shift in program focus from water quality clean-up to looking at the long-term impacts of land use upon water quality. This has been characterized as going from a "gap" strategy to a "cap" strategy.

Table IV – 2 ***C2K Commitments***

*{Those marked * are on a list, compiled by the Chesapeake Bay Program's Local Government Participation Action Plan Review Team, showing those that require local* government implementation and communication.}

	Vital Habitat Protection and Restoration
2.2.1*	Watershed management plans in 2/3rd of the watersheds with a focus on stream corridors, riparian forest buffers and wetlands
2.2.5*	Development of stream corridor restoration goals (based on 2.2.1)
2.3.1	Achieve a no-net loss of existing wetlands acreage and function . .
2.3.1.2.1	Achieve a net resource gain by restoring 25,000 acres of tidal and non-tidal wetlands
2.3.3.2*	Implementation of wetland plans on 25% of the land area . . .
2.4.1.1*	Meet the riparian forest buffer restoration goal . . . .
2.4.2*	Conserve existing forests along all streams and shorelines
2.4.3*	Promote the expansion and connection of contiguous forests through conservation easements, greenways, purchase and other . . .
	Water Quality Protection and Restoration
3.1.1*	Continue to achieve and maintain the 40% nutrient reduction goals
3.1.2*	Correct nutrient and sediment related problems – Bay and tributaries
3.1.3	Revisions to tributary strategies and their implementation
3.2.3*	Reduction of chemical contaminants
	Sound Land Use
4.1.3.3*	Permanently preserve from development 20% of watershed land area
4.1.4*	. . conservation and sustainable use of forest and agricultural lands
4.2.1*	30% reduction of harmful sprawl from forest and agricultural lands
4.2.2*	Remove LID impediments and encourage use of LID
4.2.3*	Encourage sound land use and planning practices
4.2.4*	Tax Policy impacts
4.2.5*	Promote redevelopment, remove barriers to reinvestment
4.2.6*	Tools for watershed based assessments
4.2.7*	Eco-based designs to result in lower impervious coverage
4.2.8*	Provide information to the development community and others
4.2.9*	Approaches to concentrating new development in areas with APF and with adequate water supply
4.2.10*	Evaluation of local water quality programs (E&SC, stormwater)
4.2.11*	Develop and promote wastewater options
4.2.12*	Brownfield redevelopment
4.2.13*	Urban storm water retrofits
4.3.1*	Promotion of transportation and land use planning . . .
4.3.3	Opportunities for purchase of easements . . . and special stormwater management efforts re rights-of-way and transportation projects
4.4.1*	Expand system of public access . . . in an environmentally sensitive manner . .

Stewardship and Community Engagement	
5.1.x*	Education and outreach
5.2.x*	Community outreach
5.2.1	Identify small watersheds where community-based actions are essential . .
5.2.2	Enhanced funding for locally-based programs that pursue restoration
5.2.4	Offer easily-accessible information for analyzing . . . small scale watersheds
5.2.5	Strengthen the CB Program's ability to incorporate local governments into . . .
5.2.7	Government by example

This shift is consistent with the trending state of the art in water quality programs. An article in the September 2001 issue of *Bay Journal* reports the National Academy of Sciences, through its National Research Council, issued a report in June 2001 stating that the nation's water quality programs should focus on the biological health of waterways rather than on setting effluent standards for dischargers, which has been the focus of the Clean Water Act for most of the last three decades. In the Chesapeake 2000 Agreement, the EPA and the Bay states agreed that the old water quality standards for the Chesapeake should be replaced by new ones that work "support the aquatic living resources of the Bay." The new water quality standards divide the Bay into a series of designated uses, such as spawning habitats, shallow water habitats for grasses, open water habitats for adult fish, and so on. New criteria will be applied to each designated use based on the needs of the species using those areas. Instead of a one-size-fits-all dissolved oxygen criteria, three new criteria are being developed. New oxygen criteria are aimed at ensuring that adequate amounts of oxygen are available in the right place at the right time. In some places, that means oxygen levels will be higher than required today; in other places, it will be lower. Also, a new water clarity criteria will ensure that important underwater grasses get enough light to grow, while chlorophyll criteria are aimed at regulating the amount and types of algae in the Bay. PP Once the standards are set, the Bay Program will determine the amount of nutrient and sediment reductions needed to reach the criteria for each designated use. The Chesapeake would not be considered "cleaned up" until those water quality standards are attained. . . . . Historically, the report notes, states and the EPA have measured success based largely on the setting of effluent limits in permits for industries and other dischargers, and then measuring whether those limits are met. Such an approach was useful to start the clean water program when there was often not enough information available to set goals based on aquatic life needs, the report said. . . . But the report said the effluent limit approach has frequently failed to clean up waterways because it focused on individual facilities, rather than looking at the cumulative impact of all activities on a waterway, including pollution from runoff. As a result, many of the nation's waterways remain polluted. . .. Instead, the report said "the data and science have progressed sufficiently over the past 35 years to support the nation's return to ambient-based water quality management." In such a program, the total amount of pollution must reduced, and "success is achieved when the condition of a water body supports its designated use."

The comprehensive plan requirements and innovative land design strategies (see next sections) that are applied by CBLAD in its current program already focus on the new change in direction of the federal Bay Program. Accordingly, not only does expansion of the Act fulfill the 1987 commitment, it also will provide the leadership and expertise to carry forth in meeting the *C2K* commitments throughout the watershed. In addition, its

successful liaison, technical assistance, and education programs provide a framework that can easily be expanded to encompass the new territory.

Low Impact Development: Low impact development has been around in some form for many years. It takes forms from conservation subdivisions, to open space and cluster development, to incorporation of stormwater management practices that protect water quality by replicating the natural hydrologic function of a development site. CBLAD has pioneered low impact development concepts in the Commonwealth and has been designated by the Secretary of Natural Resources as the lead agency for such concepts and programs. In 2000, CBLAD published the report *Better Site Design – An Assessment of Better Site Design Principles for Communities Implementing Virginia's Chesapeake Bay Preservation Act.* In addition, CBLAD is currently engaged in a study of impediments to implementing better site design practices. It is also involved in the examination of urban best management practices particularly as they relate to more "natural" as opposed to structural stormwater best management practices.

Application to the proposed Expansion Area:

The drafters of HJ 671 recognized that the task of expansion would not be as simple as adding the names of western watershed localities to the Bay Act. Thus, one of the required outputs of this study is to identify "the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion". Any geographic and topographic map of Virginia clearly delineates Tidewater Virginia - its marsh lands, shorelines, and tidal influenced rivers - from the western portion of the watershed where karst topology dominates. Karst topology occurs in regions that are characterized by formations underlain by carbonate rock typified by the presence of limestone caverns and sinkholes. The most important current and future environmental issue with respect to karst is the sensitivity of karst aquifers to groundwater contamination. A report, *Living With Sinkholes*, describes karst topology and associated water quality and environmental problems. A copy of the report in contained in the appendices. Some information from the report that is pertinent to this study follows.

Mankind has only recently become aware of how environmentally sensitive karstlands can be. Sinkholes, in particular, pose several problems that ultimately affect groundwater in karstic terrain. Unlike other types of terrain, groundwater in karst regions is channelized within the natural groundwater system of interconnected "pipes" that collect water from input (recharge) points to output (discharge) points. Discharge occurs in two ways. One is through natural springs as caves streams exit from openings or as seeps. In either event, the groundwater now becomes surface flow and carries with it any pollutants that entered through sinkholes. This is because karstic aquifers can not filter contaminated groundwater sufficiently to render it potable at a discharge site. The other discharge occurs through uptake in wells. Man-made changes to drainage on the surface or to sinkholes may easily alter the rate at which the underlying aquifer receives it normal recharge. Vegetation slows runoff from storms and allows water to percolate into the soil. However, runoff from impermeable materials (such as those associated with development) may rapidly be funneled through sinkholes into the aquifer. Artificially

filled sinkholes may become blocked inputs. Increasing the rate of runoff and/or blocking input points may cause surficial water to pond or flood, unless it is diverted away from its natural sink point (thereby altering the recharge to yet another sink point). This may drastically affect the amount of groundwater available for use in the immediate vicinity.

The problems with karst topology are being addressed by the legislative through HJ 161 and the work of the State Water Commission. The nature of karst, particularly the sinkhole feature, suggests that it be considered as an environmentally sensitive feature that should be subject to use and development regulations such as those currently imposed through the Bay Act program.

At the outreach meetings conducted with this study, other items were identified whereby there would be environmentally related benefits to localities. One dealt with the quality of the raw water supply. It was stated that it would be easier and less costly to treat the water for consumption if it were in better condition. Besides protection of sinkholes, from pollutants, examples were provided where counties were involved in septic pump-out programs that focused upon lands adjacent to their water supplies. These programs were corrective in nature and made use of WQIA funding. See Figures IV-2 and IV-3.

On the other hand, locals pointed out that the present program's approach of identifying areas "unsuitable for development" due to soil characteristics may create other problems in some parts of the proposed Expansion Area. In these areas there are clay-like soils, unsuitable of septic systems that encompass entire counties. They did not wish to see a classification of "undevelopable" applied to them especially as it might put up an additional barrier to economic development and another hurdle to be overcome. However, the program's new emphasis on alternative methods of compliance, that would include acceptance of alternative septic systems that can work in their environment, was viewed favorably and as a way to work better with the Department of Health on such matters.

Also at the outreach meetings, questions were raised about what does the "Bay Act", which is perceived as cleaning up the Chesapeake Bay, have to do with the western area. This general topic was addressed by relating the changes to the Bay Program and the shift from numerical goals to the environmental end-points approach. It was also addressed through discussion about the "cap" nature of the Bay Act program, as opposed to the "gap" nature of the activities that they were more familiar with through the initial tributary strategies and TMDL activities. But the most appropriate response was put forth by participants themselves as they described the whole water quality issue as a puzzle with needing to make each piece of the puzzle self-organizing and optimized at each level. This would have a cumulative effect that reaches the goal. In other words, describe the "system" - - agricultural and forestry enhancement, stormwater enhancement - - each doing its part and resulting in better quality. But the most favorable aspect of a potential expansion was that there is a need to address, and emphasize, <u>local</u> water aspects of the program and the assistance that it can bring to addressing those local needs.

Designation and performance criteria to be applied through an expansion of the Act and its Regulations: The following section of this Chapter uses the information from above along with knowledge of the current Bay Act program to address the increments of change that are anticipated with an expansion of Bay Act program and the resulting environmental implications. Please refer to Chapter III for a review of the methodology. A similar analysis is provided in Chapter V regarding the effects upon local government.

Designation Criteria: The designation of the Resource Protection Area (RPA) and the Resource Management Area (RMA), as it applies to the proposed Expansion Area, will be one of the most difficult aspects associated with expansion of the program. The RPA is defined as areas at, or near, designated state waters that are sensitive lands requiring protection. The RMA is an area that has an intrinsic relationship to the quality of State waters and that is to be identified and managed in a comprehensive manner. There will be difficulty in applying the current RPA and RMA criteria, and hence designations, in the western area due to the steep slope topography, the karst topology, the character of streams, and the character of isolated wetlands along with the fact that most of the Tidewater criteria, e.g. tidal shores, etc. don't apply.

The resulting criteria will need to be developed through a stakeholders process as was done for the initial (1989) Regulations. Also, attention needs to be paid to the ability to easily map and use resulting designations in order for them to be truly meaningful and to have a positive effect upon enhancing and maintaining water quality. Once this process is complete it is evident from the content of this report that the results from this type of planning approach show enhanced environmental quality in localities.

Erosion and Sediment Control (E&SC) Compliance Threshold: The change that will occur with applying the E&SC criteria is simply that the threshold for compliance will change. The change will be from 10,000 square feet for earth disturbance to 2,500 square feet.

The basic effect of applying this criteria is that more land will be subject to E&SC controls, thus reducing the amount of sediment that enters waterways. Since the tributary strategies and other reports show that sediment is a primary factor in the decline in the health of water quality, reducing sediments will be a beneficial effect.

Identifying an exact increment of benefit however is impossible, as was expressed in the DPB report when it addressed this issue in its assessment of the proposed changes to the current Regulations. That report stated "there do not appear to have been any studies to measure the actual changes in erosion and sediment in the Chesapeake Bay watershed resulting from the current application of this performance standard. The data do not exist to determine whether this standard results in cost effective reductions in sediment load."

While the E&SC law that already applies in the proposed expansion area has the 10,000 square foot threshold, information from the locality survey shows that some localities already apply a threshold that is less than 10,000 square feet.

Table IV-3	***Expansion Localities and E&SC Thresholds***			
Jurisdiction Type	Number	Sample	# with < 10,000	% < 10,000
Cities	11	8	4	50%
Counties	36	29	2	7 %
Towns	57	19	9	47 %

***Stormwater Quality Management*:** The change that will occur is that a local stormwater quality management program will be required. The minimum effort is the establishment of pollution run-off standards and use of best management practices that address water quality. Establishment of local watershed defaults is an optional component of a local program. While fewer than 50% of the localities that responded to the locality survey said they had a stormwater management plan, slightly more than ½ of those plans addressed water quality specifically. A few localities that will be subject to the Phase II VPDES program will need to address water quality in the future. As with the E&SC criteria, some localities are taking some actions, thus it is impossible to provide a succinct quantitative determination of the increment of change. Enhanced water quality is achieved by meeting the standard that there is no net increase in the pollution that leaves a site and by achieving a reduction when the activity involves redevelopment. This places a cap upon the ability to further degrade the quality of state waters.

A BMP maintenance program that provides for inventory and tracking of maintenance is also required through the current criteria. These programs provide a mechanism for assuring that BMPs continue to work properly and the pollutant reduction targets are met.

Another increment of change will be that localities, once faced with a requirement to undertake a stormwater management program – and when provided with resources and technical assistance to do so – may well do it, not in a strictly technical and structural approach, but will use the better site and low impact development approaches advocated by the current program. Also, they may well address their stormwater management issues by developing a regional or watershed based approach. These approaches have been used in Tidewater and have been developed with technical and financial assistance from the current program. The value of addressing stormwater management is well documented in the Virginia Nonpoint Source Management Program report, Bay Program materials. Please see the appendices for reports and references.

***Septic System Criteria*:** The change that will occur with an expansion of the current program is that localities must have a program to insure compliance with the septic pump-out requirement. The increment of change, again, is not quantifiable however, HJ 771 provides the statistics that the Commonwealth has more than 750,000 septic drainfields that will fail with age, positing a serious threat to the environment. It also states that there are more than 30,000 homes without indoor plumbing and unknown numbers of straight pipe discharges (raw sewage) into state waters. The problem of ineffective septic systems is being addressed through the awarding of grants (see Figures IV-2 and IV-3), but this occurs on a piecemeal basis. Through expansion of the program, a systematic approach will be applied that requires an inventory and a tracking system. Local septic pump-out programs developed under the Act and its Regulations also have

included extensive public awareness programs that also appear to be very effective in minimizing the adverse impacts of development that occurs on septic systems.

A properly implemented program results in a reduction of nitrogen loading and the amount of pathogens and toxics that reach state waters. Septic pump-out and repair programs present a primary strategy in the clean-up of streams. In addressing this matter, the environmental benefits focus group identified a list of benefits. These benefits, provided in an outline format, included:

Fewer faulty systems result in:

- Improved water quality
- Increased recreational benefits
- Protection of public health when there is exposure to water e.g. playing in streams
- Reduction of exposure to human viruses and pathogens

Having an inventory of septic systems is a good practice -

- Finding something else when doing conducting it e.g. "straight pipes"
- The inventory provides a useful management tool
- An added benefit is economic in that it establishes small business relationship i.e. regular pumping provides for regular business

Other considerations identified by the focus group included:

- Prevention of (public) money being spent on the repair of systems;
- The local situation (water quality) may not be much of a problem but the problem occurs during storm events with fecal matter carried into streams;
- Well contamination studies show the biggest potential source is a failed septic systems;
- There is an impact on water *supply* when individual wells are affected.

Addressing the environmental benefit of the current program's septic system requirements, needs to be put in the context that when the current program was created there were no other programs or activities that specifically addressed this subject. As shown through HJ 771 there is a heightened level of interest and activity at this point in time and, perhaps, the Departments of Environmental Quality and of Health will create a more far-reaching program. If that becomes the case, the criteria and requirement of the Bay Act program could be rescinded; however, until that time it is appropriate to continue with, and expand this criteria.

***Agriculture*:** The changes that will occur with regard to applying the agriculture related criteria are three-fold. The overall goal of this layered approach is to reduce the amount of non-point source pollution that enters local waters and ultimately the Chesapeake Bay. One aspect of the program is that the type of plan that is prepared for farm operations is more comprehensively water quality focused as opposed to a standard nutrient

management plan or a standard farm bill plan. Another change is that a priority is established for the funding and preparation of plans that are in the most environmentally sensitive areas (i.e. parcels where there is a RPA designation). The third change is that farming operation must respect the buffer component of the RPA.

The practice of using environmentally based planning for the conduct of farm operations is well based in federal law, state programs, and basic good stewardship. Through state and federal sources associated directly with the Bay Program more than $550,000 is spent annually on the preparation of such plans. In addition, there is the NRCS program that also prepares farm plans. To better address the increment of change, the following provides more detail about the soil and water quality conservation plan (SWQCP) that is required under the current Bay Act program. In short, a SWCCP addresses (note links to websites that provide additional detail):

- Soil Management
- Nutrient Management
- Integrated Pest Management

There is a difference between the SWQCP and what is known as a Farm Bill Plan. The United States Dept. Of Agriculture's Natural Resources Conservation Service (NRCS) requires a that a Farm Bill plan be prepared if a farmer wishes to receive any USDA program benefits, e.g. low interest loans, price supports, commodity loans, etc. The plan provides the appropriate conservation measures on any cropland (not pasture) that is determined to be highly erodible and which the farmer must implement as a condition of receiving assistance. These Farm Bill plans, generally, address soil erosion. Soil erosion is but one part of a Soil & Water Quality Conservation Plan. The other two aspects are: Nutrient Management and Integrated Pest Management.

In Virginia, the DEQ has its Virginia Pollution Abatement (VPA) permit system, that requires producers with lots of animals to have a VPA permit of which a nutrient management plan is a part. Additionally, the Soil and Water Conservation Districts manage cost share funds, allocated by DCR. These funds are used to promote voluntary implementation of agricultural best management practices.

As with the septic system component of the current program, it is appropriate to look at the context in which the agriculture criteria was initially considered as a component of the Act. Prior to the Bay Act, there existed a system to deliver the conservation message to local farmers. This system, which traces its origins back to the post Dust Bowl era, consists of two government sectors working together. They are the Natural Resource Conservation Service, "NRCS," and the local Soil and Water Conservation District, "SWCD." These two agencies have worked in unison to promote conservation throughout their local SWCD. Usually, a SWCD consists of one to three counties. The SWCD is governed by a Board of Directors that is elected by the local citizenry. The SWCD also consists of one to three professional staff that are hired by the SWCD Board. SWCD offices are also typically co-located with the USDA's Natural Conservation Service. The SWCD Board and staff rely heavily upon the local NRCS staff and regional DCR staff for technical support.

Conservation planning can be divided into several categories: Federally required, state required, or locally required. On the national side, Title XII of the Food Security Act of 1985 , encourages participants in United States Department of Agriculture (USDA) programs to adopt land management measures by linking eligibility for USDA program benefits to farming practices on highly erodible land and converted wetlands. From the state perspective, the Department of Environmental Quality (DEQ) administers Virginia's Pollution Abatement program. Under that program, operations that meet certain animal number thresholds are required to have, as part of their VPA permit, a certified nutrient management plan. These plans are typically written and/or approved by regional DCR nutrient management specialists. DCR also, via the local SWCDs, distributes incentive funding to operators who agree to implement state approved BMPs. Additionally, at the state level, the Virginia Department of Agriculture and Consumer Services administers its Agricultural Stewardship Act. This is a complaint driven system. Should the Commissioner of VDACS find that a complaint has merit, VDACS staff, in conjunction with local SWCD staff will develop a BMP impleme ntation schedule to correct the problem. Finally, as mentioned earlier, all owners of agricultural lands within a locally designated Chesapeake Bay Preservation Area must have a Soil & Water Quality Conservation plan. This plan must be implemented if crops are being produced within the 100' buffer.

Therefore, although there exists a broad net of conservation planning requirements, many operations do not fall under the regulatory purview of the USDA or the DEQ. Although it is difficult to ascertain concrete numbers, the NRCS estimated in it's 1994 "Analysis of Expected Farm Level Impacts of the Coastal Zone Act Reauthorization Amendments of 1990" that only 40 percent of farms in Rockingham County were USDA participants. Similarly, less than 100 of the estimated 886 dairy farms within the state are required to have a VPA permit (and associated Nutrient Management Plan). With regard to the effectiveness of the current program, Table IV-4 shows the protection of the RPA buffer based upon the content of SWQCP plans prepared under the program.

Table IV-4 Bay Act Program SWQCP and RPA Buffer Protection

	Approved		***Buffer Preserved (linear feet)***			***Buffer Acres***	
	Plans	***Acres***	***100' buff***	***50' buff***	***25' buff***	***Acres Preserved***	***Buffer Created***
FY 92	159	16,694	4,988	280,877	236,570	470	N/R
FY 93	355	16,694	4,989	280,878	236,570	470	N/R
FY 94	494	30,088	160,600	426,660	378,746	1,076	N/R
FY 95	726	41,609	279,157	67,965	260,299	868	N/R
FY 96	573	37,163	133,377	123,254	242,756	587	N/R
FY 97	590	26,065	128,864	67,260	110,931	437	N/R
FY 98	717	32,873	124,844	75,881	171,594	472	44.05
FY 99	778	33,116	100,769	35,053	190,019	381	85.86
FY00	720	22,950	57,803	21,917	94,261	212	37.15
FY01	701	24,481	45,824	56,578	115,214	236	23.77
TOTALS	***5,813***	***281,733***	***1,041,215***	***1,436,323***	***2,036,960***	***5,208***	***190.83***

While the Bay Act program's agricultural component has integrated well with the other systems in the Tidewater Area, the challenge for expansion of the program is with livestock operations. Specifically, based on the 1997 Ag Census, there are: 2.5 times more farms, 7.5 times more beef cattle, 11 times more dairies, and 3.8 times more poultry farms. The environmental issue surrounding livestock or animal farms is waste whether it is deposited directly into water courses, stockpiled on the farm, or applied on the land as a fertilizer. BMPs that address these issues are more costly to install and implement than their counterparts on cropland. In its CZARA study, the NRCS estimated that the typical BMPs needed, e.g., rotational grazing, diversions, filter strips, fencing, and alternative water, to address water quality concerns on the typical livestock farm would cost $3,520.00 (without any state cost share). By comparison, most farms east of I-95 have been able to address water quality concerns via changes in management, i.e. tillage and nutrient application rates, and have not needed to install permanent or structural BMPs, e.g. fencing, wells, waste storage lagoons, etc. In order for implementation to be successful West of I-95, state allocation of funds must follow suit.

Silviculture: The change that will occur with the proposed expansion is that local governments will have more authority regarding silviculture operations as they pertain to protection of the RPA buffer. The criteria that is contained in the Act's Regulations provides that Forestry Best Management Practices must be followed when silviculture occurs upon a designated resource protection or management area. This is particularly important where there is a RPA that is being encroached upon by logging operations. As with some of the other criteria, the need for its existence with regard to protection, or value to the environment is already established through legislative such as the Silviculture Water Quality Act. Inclusion of the criteria in the Bay Act program provides better and more effective implementation of a program that already exists. Data from 1999 showed that less than 10% of silviculture operations adhered to correctly applied Forestry Best Management Practices. With the institution of a Memorandum-of-Understanding, between the Department of Forestry and CBLAD, that explains how the complaint-based program works and what the local government's role, the number of violations in the Tidewater Area has decreased. Less violations translates into enhanced water quality.

***The Buffer*:** A change that will occur with expansion is that within the local RPA, designated consistent with the Board's criteria, only water dependent uses, redevelopment, and some incidental uses area allowed. This limitation on land use allows for the protection of the associated water feature from pollution that would be generated from such uses and allows the buffer to perform its natural function. Maintenance of the buffer and limited passive use is allowed. Volumes have been written with regard to the benefits of buffers protecting and restoring the quality of surface waters. Public funds are expended for the protection riparian forest buffers. Conservation easements are placed upon these environmentally sensitive lands. The use of streamside buffers is an accepted and advocated practice.

In preparing this report, many testimonials with respect to the value of buffers were identified. An excerpt from the Capital newspaper, on-line edition of May 29, 2001, titled, *Chesapeake notebook: Protecting the bay on stream-banks miles away*, show the results of private efforts, some with CREP and other voluntary programs. But these would for be naught if basic regulations are not in place for a minimum buffer. Nothing more really needs to be said in terms of this report – the principle for the buffer has already been established. However an item that does need to be addressed is what are the appropriate characteristics of a buffer that should be applied in the proposed Expansion Area. This is an item that cannot be addressed in this report but would be one of the major focus points in creating new regulations that apply specifically to the proposed Expansion Area.

***The Three General Performance Requirements*:** The change that will occur with regard to what are referred to as the three general performance criteria (minimizing land disturbance, minimizing impervious cover, and preserving vegetation) is the institution of a local requirement that requires compliance with them. In general, the criteria would be established through:

- landscaping standards (minimum)
- establishing impervious (lot) cover standards
- review of grading plans with the purpose of eliminating unnecessary land disturbance.

The increment of change is not identifiable since it will vary with the practices of each locality. Some localities in the proposed Expansion Area already practice all of the above, some do so partially, and others do not address the items at all. The locality survey shows that there is wide variation among localities that accommodate flexibility that would help to preserve environmental features or to require practices that help in protecting water quality. Through the comprehensive and integrated approach envisioned by compliance with the Act, the natural hydrology of a site can be more closely adhered to resulting in preserving natural environmental functions and reducing the costs of development. Programs to comply with these requirements could run from simple standards to involving low impact development and similar design based development that preserves natural features and the natural hydrologic functions of a site.

Plan of Development Review Process Requirements and Water Quality Protection Measures in Local Land Development Regulations: The change that will occur with the expansion is that a plan of development review process will be required for all land disturbance exceeding 2,5000 sq. ft. and proposed development in a RPA . This process ensures that water quality matters are addressed during the planning stages. It also requires that specific performance standards are reviewed and subject to public review. The increment of change is not identifiable since it will vary with the practices of each locality.

An aspect of this review requirement that will affect almost all of the development that occurs is that of the required Water Quality Impact Assessment (WQIA) for any

proposed development in a RPA. The WQIA requirement is permissive throughout the RMA. The WQIA establishes a program for evaluation of a development proposal with regard to water quality and hydrologic implications. It identifies appropriate mitigation that must be complied with. Consideration of water quality items, through compliance with the performance standards, in the plan of development review process is required. By having a program for evaluation of a development proposal with regard to water quality and hydrologic implications, appropriate mitigation is identified and applied; thus, enhancing water quality.

Associated with this performance criteria is the need for local zoning and subdivision regulations to address water quality as a part of the development review process. Thus, each locality will have a regulatory program to protect the quality of state waters. The result of having such regulations are shown in enhanced environmental quality. The final aspect of the development review process is that of insuring that development occurs as approved on the plans. This involves local monitoring and enforcement programs. For violations, especially within the buffer, a process is required for the administration of waivers, exemptions, modifications, and for processing exceptions.

Because the overall program is mandatory, it is expected that there is dutiful compliance. Adequate enforcement of environmentally based statutes is necessary to achieve the environmental goals that the regulations are to achieve.

***Water Quality Considerations in Comprehensive Plans*:** Local comprehensive plans will need to address water quality per guidance issued by the Board. The locality survey showed that most local plans had an environment element with varying degrees of content. It showed that less than 2/3rd addressed water quality at all. And, less than 20% addressed planning in a watershed context.

The value of water quality planning is already established in the Commonwealth as a specifically identified permissive component of any comprehensive plan and as a requirement in Tidewater Virginia. The value of watershed based planning is recognized by the Commonwealth's commitment, through the Bay Program, to have watershed management plans in two-thirds of the Chesapeake Bay watershed. Through these programs and processes there is a raising of awareness of water quality and development issues. And, by its very nature, such planning ensures environmental considerations are assessed and protected in a manner consistent with local goals and objectives. The results in localities that do good environmentally based planning show in the enhanced environmental quality of their communities. Also, the watershed based planning that is encouraged as an appropriate way to address requirements of the Act is a viable and accepted way to address water quality requirement imposed through federal regulatory programs and is essential for de-listing of impaired waters.

Summary/Conclusions

A major point from the exploration of the environmental benefits of expansion of the Act is that it is not the Bay, per se, but the tributaries, the headwater streams, and all the waters of the state that will benefit. As each of the headwater streams, that flow into the tributaries, that flow into the Bay increase in their health and water quality so will the Bay.

This aspect, Chapter IV, of the study is not one of all the environmental benefits but is more general with regard to the general benefits/impacts pertaining to enhanced water quality along with a more specific assessment relative to the performance criteria in the Regulations. Thus, given the magnitude of this existing commitment, the question is not whether there is a benefit to the environment of expanding the current Bay Act program but whether doing so is an effective, efficient, and appropriate way to protect and enhance the quality of state waters. An answer to that proposal is graphically illustrated in Figure IV-1 which shows that within the Tidewater Virginia area, the number of miles of impaired streams is dramatically less than in the balance of the watershed (the proposed expansion area) or outside the watershed. This fact is even more startling when viewed in concert with Figures V-1 and V-2 in Chapter V that show 2/3^{rds} of the population lives in Tidewater while it has only 1/4th of the land area. Given that the myriad of state-based environmental programs are applied state-wide and the current Chesapeake Bay Act program applies exclusively to Tidewater Virginia it appears that during its twelve years of existence, it has had a disproportionate and positive effect upon protecting and enhancing the quality of state waters. This fact puts the focus upon the key aspect of the Act – that it is a mandatory as opposed to a voluntary program. Education and incentive based, voluntary programs may be a preferred way to approach many problems; however, in addressing the need to protect the quality of state waters the mandatory program, as implemented through CBLAD, appears to not only be effective in its results but it does so at a direct dollar expense to the Commonwealth that is significantly less than the wealth of voluntary, educational, and short-term programs that exist.

A significant perspective, described in the study, is that of emphasizing the total integrated system of the bay, its tributaries, and the streams that feed the tributaries. This concept is reinforced by numerous articles and reference documents that framed the issue as "saving the Bay by saving watersheds". From that concept, a suggestion was made that if a new program were created for the proposed Expansion Area it should be named in that manner, perhaps, along the lines of the Chesapeake Bay Rivers Act/Program. It was also noted that the language of the current Act addresses the protection of the quality of state waters and does not refer specifically to the Bay except in connection with the rivers that feed it.

It is noted that a cost/benefit analysis cannot be applied to the effects of the criteria due to the nature of the issues. Also, the need for developing an expansion program in concert

with the activities and programs of other agencies in order to avoid redundancy and inefficiencies was evident.

The commitments that the Commonwealth has made through participation in the original Chesapeake Bay Agreement and its subsequent revisions essentially mandate to the Commonwealth that the goals, purposes, and program established for the Bay Act be expanded to the balance of the watershed. The original Bay Agreement called for a watershed wide program that focused upon the land use based approach as practiced through the Bay Act. In assessing the year 2000 Bay Agreement, there are commitments specific to concepts of sound land use that are only addressed, in Virginia, through the CBLAD program. Finally, the direction of the overall Bay Program has gone through a recent shift from measuring nutrient loads to the establishment of environmental end-points that support living resources. This concept shifts the need for water quality protection programs to not only deal with the mechanics of erosion and sediment controls, controlling septic discharge, and structural stormwater best management practices but also to include low impact development and better site design practices. The current Bay Act program advocates for such practices and they are addressed through the program's local implementation review component.

In conducting the study and reviewing the gathered information, it became apparent that the current Bay Act program presents a unique approach to controlling nonpoint source pollution through its focus upon the land use connection and in the long-term context of comprehensive and land use planning. The benefit of the Bay Act program approach, wherein a locality's approach is applied in an integrated and comprehensive framework as opposed to compliance with, or imposition of, a singular requirement, emerges as an underlying principle that needs to be applied in order to achieve desired water quality goals.

HJR 622 STUDY: CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

V. EFFECTS TO STATE AND LOCAL GOVERNMENTS

This Chapter examines the effects to state and local governments in terms of program development and implementation. Issues pertaining to the costs to local government are addressed only in general terms since the Act carries with it an obligation to provide those resources necessary to carry out and enforce its provisions (§ 10.1-2100.B). The costs to the state are specifically addressed in Chapter VII.

Expansion Area Profile: Chapter IV identified the geographic and environmental differences between Tidewater and the Expansion Area. As identified in Chapters III, there are also significant differences between the localities in each of these areas. These include a substantial difference in character between urban/suburbanizing nature of Tidewater to the predominately rural with some pockets of sub-urbanization nature of the proposed Expansion Area. There are 36 counties, 11 cities, and 57 towns in the proposed Expansion Area. Table V-I provides a comparison between the size of cities and counties between Tidewater and the Expansion Area. It shows that the two areas are comparable with regard to smaller localities (cities and counties < 15,000 population); the Expansion Area has more middle-size localities (between 15,000 and 100,000 population); and Tidewater has more large localities (>100,000 population) by a 13 to 1 count. Also, the Expansion Area has 57 towns compared to 38 in Tidewater. A listing of all the counties, cities, towns and PDCs is found in Chapter III in Table III-2.

TABLE V-1

City Size Comparisons	*T*	*E*	*County Size Comparisons*	*T*	*E*
Cities greater than 100,000	8	0	Counties greater than 100,000	5	1
Cities between 40,000-100,000	1	3	Counties between 40,000-100,000	5	6
Cities between 15,000- 40,000	5	4	Counties between 15,000- 40,000	7	18
Cities less than 15,000	3	4	Counties less than 15,000	12	11

Chapter III describes differences in population and land area between Tidewater and the Expansion Area. Figure V-1 graphically shows a comparison of the land area between the two study areas and the balance of the State and Figure V-2 shows population distribution per the 2000 Census.

FIGURE V-1

Percentage of Land Area

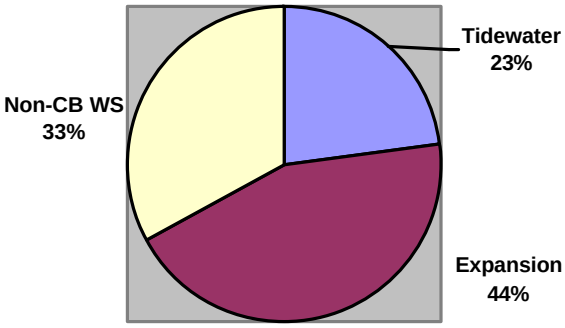


FIGURE V-2

Population Distribution (2000)

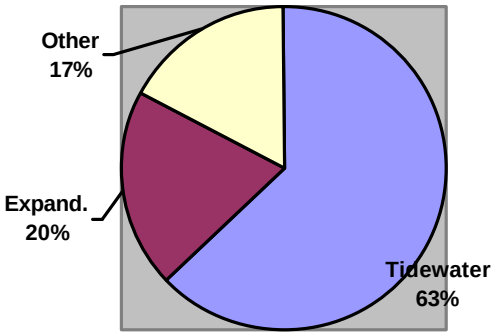
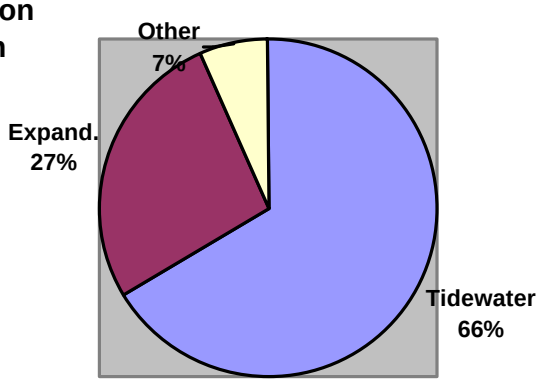


FIGURE V-3

Growth Rate Comparison
As % of State Growth
1990 - 2000



Another factor that influences a comparison between Tidewater and the Expansion Area is the rate of growth. Figure V-3 shows that Tidewater had 66% of the growth of the state during the period 1990-2000 while the Expansion Area had 27% of the state's population growth. However, within each region the figures show that the Expansion Area grew by 20.5%, Tidewater by 15.5%, and the balance of the state by 5%. So while the vast majority of new development is occurring in Tidewater, the Expansion Area is experiencing that rate of change at a higher level. This means that pressures on local governments in the Expansion Area to keep up with the demands of growth, especially as it relates to developing new land development programs might be even greater than it was for the Tidewater localities.

The Locality Survey: To get an idea of the capacity of local government in the proposed Expansion Area to handle requirements for new development regulations as required by the Act, a survey was conducted. 31 of the 41 (75%) of the counties

responded; 9 of the 11 eleven (82%) cities; and 28 of 57 (50%) of the towns responded. The survey was structured to address planning, land development code provisions, and compliance with key aspects of the required performance criteria. The survey instrument is contained in the appendices along with a table showing the responses. The information gleaned from the survey is provided in Table V-2.

IV. Table V-2	**Locality Survey – Summary of Results**		
Item	***Counties***	***Cities***	***Towns***
	31 responses – 75%	9 responses – 82%	28 responses -50%
Status of Comp Plan	Nearly all have adopted or amended their plan in the last five years.	Four have plans current within the past 4 years. The others are from 5 to 11 years old.	Only 50% of the responders have current plans.
Environmental Element	95% with varying degrees	67%	50%
Address water quality	65%	67%	40%
Use watershed based planning	16%	33%	21%
Current zoning code	94% (all have zoning codes)	100%	75%
Use of Environmental Overlay Districts	35%	22%	25%
Current subdivision codes	71% (all have subdivision codes)	67% (all have subdivision codes)	54% (18% report no code)
Stormwater Programs / w water quality provisions	29% stormwater 13% with water quality	55% stormwater 55% with water quality provisions	36% stormwater 25% w W.Q. 07% use county
E&SC Programs	97%; 6% have reduced thresholds	100%; 33% have reduced thresholds	70%; 25% have reduced thresh.
Septic Inventory and Pump-out Program	29% inventory 07 % p-o program	11% inventory 00% p-o program	18% inventory 07% p-o program
New Homes		(one with no data)	
➢ 100 per year	67%	33%	07%
➢ 51-100	19%	22%	10%
➢ 26-50	10%	11%	10%
➢ 11-25	03%	11%	13%
➢ 10 or less	00%	11%	61%

The effect of the proposed expansion upon localities is dependent upon their capacity to handle the new demands. In general, the localities in the proposed Expansion Area appear to have comprehensive plans and land development codes that are maintained on a regular basis. The survey also contained some specific questions directed toward innovative and state-of-the-art planning concepts and regulatory approaches. These items included watershed based planning, use of environmental overlays, and built-in code flexibility for designs that would accommodate sensitive environmental features. Localities that have such approaches range from 10%-25% of those who responded. Thus, while the general condition of plans and codes is viewed as being favorable, there appears to be significant work necessary to encourage and promote the type of planning and development practices, in the proposed Expansion Area, as is envisioned by the Commonwealth's commitments in the Chesapeake Bay 2000 Agreement and as is necessary to achieve the Commonwealth's water quality goals. Thus, there will be

additional staffing demands at the local level since a new area of expertise will be required. However, through the proven effectiveness of CBLAD's current local assistance grant and liaison program that work can be accomplished.

The Locality Meetings: The locality survey, however, only provides a snapshot of local government capacity. In order to get a better idea of how the proposed expansion may affect local government, seven meetings were arranged through the auspices of the potentially newly affected planning district commissions (regional commissions). Seven meetings were held with a total of ninety-two participants. The meeting agenda, meeting notes, and letters of invitation are contained within the appendices.

The following narrative provides a summary of the comments, from those outreach meetings, that have general applicability and, in some cases, additional comment from CBLAD. Comments that are appropriate to specific performance standards, e.g. agricultural operations are included in the next section of this Chapter. Comments that are appropriate to the issue of environmental benefits are reported in Chapter IV. Area specific comments are found in the notes recorded from each of the meetings

While the point of "no more regulations – no more mandates" was repeatedly aired, there was also acknowledgement that the deteriorating water quality situation and increasing demand by the public for environmental protection and enhancement would necessitate local government to be more active with regard to protection of the environment. Thus, the major message was "if it is enacted then it must be funded!" The key to having any possibility of acceptance is the providing of resources (funds, assistance, manpower) to accomplish its implementation. It was also pointed out that the income levels are very low in some of the areas and that there is greater reliance on state government in all types of assistance.

The position was aired that provisions in the zoning enabling statute provide the same ability/authority that is available through the Act with regard to water quality enhancement through land use regulation; thus, they advocate that if the localities desire to undertake more water quality based planning and land use controls, they can. While that position has some merit and localities have used the basic zoning enabling authority for some stream corridor protection, it is problematic if the general interpretation would apply to all of the performance criteria that are contained in the Act and its regulations.

There was an expression that the resulting program should address "maintaining what you have" i.e. keeping natural buffers and develop the remaining (developable) land so as not to erode the quality of state waters. While this general approach and thought is consistent with the current program, the opinion was expressed that bringing in a sweeping, complicated program would not work and that it would be better to spend money on identified problems than to institute a program to identify what we (they) already know. They emphasized the need to use resources at hand and not get further spread-out over more layers of government. In many localities staffing is so limited with regards to time and resources that they would not be able to manage grants, thus,

providing assistance in addition to just local funding would be necessary. It was expressed that complying with a Bay Act type program would be a diversion of funding from what needs to be done i.e. they know what has to be done and are trying to do it. The point was made "if we can't clean up the point-source problems (already identified and targeted) then how do you expect us to get behind non-point source pollution programs". These comments were made with regard to the localities spending their own funds to identify point-source problems and design of a solution that that was not funded by the state.

With regard to economic and financial issues, an indirect concern was the effect that additional land use regulation and compliance requirements would have upon growth and development. It was stated that they "don't want to put up additional barriers to economic development" and that any program needs to acknowledge that it would be expanding into geographic areas that need economic stimulation. The issue of not hindering economic development so that they can keep their young people and have more jobs is an item of primary concern in one area. Regarding the economic implications there is another position and that is the negative effect upon economic development and investment when there are poor environmental conditions and the implications regarding (reduced) cost of restoration when water quality protection programs already existed. While documentation of such efforts exist, such as VIMS study on the aftermath of Hurricane Floyd, the scope of such matters is beyond the focus of this report.

Overall, the groups felt there is general support from the public for taking a comprehensive approach to water quality planning and improvement and that education is the key to programs that are proposed to protect and enhance state waters. They stated that the James River Roundtables have been beneficial and cited the *Save Our Rivers Report* as a good item that helped individuals understand the status of state waters and what should be done to protect them.

Requirements for compliance: The following section identifies what a locality will need to do for compliance with the Act and its current regulations and what the potential effects are upon local government. The environmental benefits and implications are not addressed since they are covered in Chapter IV.

Identification of water resource and water resource protection and management areas: At present such designations are not required. Under the Act, these areas are known as the Resource Protection Area (RPA) and the Resource Management Area (RMA). A few localities have used similar approaches for limited environmental protection area such as stream corridors and enhanced flood plain management. Local governments will be required to have an environmental inventory (the locality survey shows that of the reporting localities, 95% of the counties, 67% of the cities, and 50% of the towns already use some type of environmental planning in their comprehensive plans). This information must be specifically mapped as, what is now called, the Chesapeake Bay Preservation Area (CBPA). These become the areas that are subject to compliance with the performance criteria. As necessary, assistance is provided to local governments through grants. Also, direct information is provided by the CBLAD GIS function.

Changes in local land use and development regulations: All the expansion counties and cities have zoning ordinances. There may be a town that does not. While all localities are to have subdivision codes, they do not have to address water quality considerations. Performance criteria are an integral part of any land development regulation. The degree to which they address water quality and protection vary. Regulating landscaping, impervious cover, and grading exist in varying degrees in most localities. In some localities, such as Loudoun and Clarke counties, expansion of the Act would not result in new regulations. In other localities, particularly those with only the minimal code, new regulations will be necessary.

Localities will need to prepare and adopt performance criteria consistent with those established in the regulations. This may be accomplished through either incorporation, or reference to, local land development codes (zoning, subdivision) through the use of stand-alone ordinance. A model ordinance approach was available for the established of the Tidewater programs and it was used by several localities. With the adoption of the 2001 Regulation changes, CBLAD is initiating a new program whereby the agency identifies deficiencies between local codes and the new regulations. Thus, the locality is given specific direction, along with guidance, as to the types of changes that need to be accommodated. This assistance program should also be applied with any expansion program.

For most localities, compliance with the general standards will simply be an extension of their existing review process such as landscape standards (minimally pertaining to the RPA buffer), establishing impervious cover standards for lots, and review of grading plans. In other situations, more complex requirements may be applied. The cost to local government will vary widely depending upon the type of regulations that are enacted. For those localities that seek to implement more comprehensive and innovative approaches, special technical assistance funding has been provided.

On-going plan-of-development review and enforcement: The use of performance based water quality requirements is permissive under the zoning statutes. It is not widely used in the expansion area. Thus, as pointed out in the locality meetings a new type of expertise will be required in many localities. Consideration of water quality items, through compliance with the performance standards, in the plan of development review process is required. A Water Quality Impact Assessment is required for any proposed development in a RPA. It is permissive throughout the RMA. Expertise is necessary to properly review a WQIA and integrate mitigation measures into the associated development plan. The costs to local government vary widely depending upon current local programs and the type of development that occurs. Also, direct technical assistance is available through the liaison program as the current Regulations specifically require that CBLAD shall respond to local requests for the review of a WQIA.

Compliance with Erosion and Sediment Control criteria: The requirement for a E&SC program already exists in statutes and nearly all localities have a formal review process. Known exceptions exist for towns who contract with counties or are engaged with some

other interagency arrangement for the service. The difference that is introduced with the Act is reduction of the threshold for compliance from 10,000 square feet to 2,500 square feet of land disruption. Since E&SC programs are already required and accommodated in each locality, the effect upon local government in terms of costs and operations is incremental and is related to the amount and type of development activity.

***Compliance with Stormwater Management criteria*:** Stormwater management programs are enabled, but are permissive except for those localities subject to Phase I or Phase II of the VPDES. Also, such programs only need to deal with quantity and, under the VPDES, with a subjective measure of quality. The State Stormwater Manual Program provides a tool and additional enabling authority, but it does not require a quality component. With expansion of the Act, protection of water quality is required and thus a local stormwater management program, addressing both quantity and quality, is required. The minimum effort required of local government is the establishment of pollution run-off standards and use of water-quality best-management-practices (BMP) to meet the standards. Another aspect of such a program is an inventory and system for tracking of maintenance.

Less than 40% of the localities in the expansion area have some sort of stormwater management programs and less than 20% address water quality. Developing and implementing programs that meet the Act will effect local governments. The impact will differ depending upon their existing programs and capacities. Running an on-going stormwater program can vary widely in costs. As with other aspects of the overall program, the effect upon a specific locality will be dependent upon the type and quantity of development that occurs there. CBLAD provides direct technical assistance in the review of plans and some assistance has been provided through the local assistance grant program for the on-going implementation of local programs.

***Compliance with Agricultural performance criteria*:** In the outreach meetings, there was a perceived negative impact upon agricultural operations with the additional cost of compliance falling upon the farmer. On-the-other-hand, it was noted that many farmers utilize the ag-cost-share program and that many see the benefits of having and following a farm plan. It was noted that the Ag-BMP programs have been excellent, but the problem is that they have not been adequately funded. But never-the-less, there is the perceived impact of additional regulation. The point was made that implementation of the agriculture performance standards needs to avoid duplication with the DCR programs. [Please refer to Chapter IV for a description of the types of plans prepared by DCR and the Bay Act program.]

Except for poultry operations, the preparation of a nutrient management plan is a permissive activity in the proposed Expansion Area. These plans deal only with nutrient management and are provided by the NRCS and DCR. The existence of such a plan is required to participate in the agriculture cost-share program. With expansion of the Act, preparation of farm plans (see Chapter IV for a description of a farm plan) on specific agricultural sites, along with the implementation of the plan, is required when an encroachment into the RPA buffer is desired.

Within the CBLAD program there is a component for the preparation of farm plans. Recent revisions to the regulations provides a mechanism for enforcement of the program requirements but does not require active participation by local government. Thus, at this point in time there is no substantial effect upon local government with regard to this performance criteria.

***Compliance with Silviculture performance criteria*:** Enforcement of the Silviculture Water Quality Act has historically been handled through the Department of Forestry and occurred on an after-the-fact basis. The Act provides for local authority regarding silviculture operations as they pertain to protection of the RPA buffer. A Memorandum of Understanding (MOU) exists between DOF and CBLAD that explains how the compliant-based program works. There are no significant costs to local government as the arrangement created by CBLAD and DOF deals directly with the violator. There is a potential for involvement by local government, however any costs are minimal and incremental, as they would occur on a case-by-case basis.

***Compliance with septic system performance criteria*:** The basic requirement of the septic system performance criteria is to insure that such systems are properly maintained. One option is to have a periodic (5-year) pump-out. The 2001 proposed changes to the regulations include alternatives such as an inspection and some structure approaches. Another requirement is that an area for a reserve septic field be provided for in the design of newly created lots. Common to any requirement is the need to have an inventory of septic systems. The locality survey indicates that about 20% of the localities already have such an inventory. Within Tidewater the inventory has usually been prepared by a locality with its updating accommodated by the local health unit. Most of the inventories have been prepared with the use of grant funds from CBLAD. Approximately $200,000 has been spent in this manner. CBLAD also prepared spreadsheets and provided technical assistance.

The issue of septic system performance, as noted in Chapter IV, is being addressed by some localities in the proposed Expansion Area with assistance provided through WQIA and Health Department programs. Such programs are instituted only on a sporadic basis, usually when there is a health threat or a specific problem is present. HJ 771 is addressing this general issue, and the Department of Health is also very involved in issuing new guidance and is now in the process of amending its septic system regulations to require system maintenance statewide.

The most significant issue with respect to the effect upon local government is the political aspect of mandating a pump-out and then proceeding with enforcement. Where this issue has been broached, it has been most successful when accompanied by a good public education program. Once the inventory is completed and the education materials are prepared, there is not a significant effect upon local government except when having to deal with specific situations.

Compliance with the RPA buffer protection criteria: The buffer protection criteria take two forms. One is the restriction of land use to those which are water-dependent or

which constitute redevelopment. There is no demonstrable effect that this aspect of the performance criteria has an effect upon local government. One item that is frequently raised is diminishing of tax revenue by land area not being developed to its impervious cover potential. This item was addressed in the DP&B economic assessment of the initial program and the 2001 regulatory changes with no conclusion being reached other than there are arguments on both sides, e.g. that the preservation of the buffer enhances overall value of the general area, and no empirical conclusion. Anecdotal evidence presented to the Board in the aftermath of recent hurricanes from the City of Williamsburg and from the VIMS study show definite benefits and minimization of storm damage for localities that had intact buffers. Further, the cost of restoration is a cost to be avoided (reduced) by items such as good streamside management. Examples of this are evident in the WQIA grant applications that seek to restore streams that are now experiencing unacceptable levels of sediment deposition due to inadequate streamside management.

The other aspect of buffer protection is the management of its vegetation. As with other items, this presents an incremental cost to local government as staff becomes involved in preparing guidance and spending time working with citizens on this matter. CBLAD does provide technical assistance and guidance in such matters.

***Compliance with comprehensive plan criteria*:** All localities are required to have a comprehensive plan. Water quality considerations are currently optional in the proposed Expansion Area. With expansion, local comprehensive plans will need to address water quality per guidance issued by the Board. Currently that guidance deals with the general topics of: constraints to development (a land use approach to water quality), protection of water supply, streambed and shoreline erosion, public access, and enhancing water quality through revitalization and redevelopment. It is likely that the guidance will be revised to better address the proposed Expansion Area such dealing with the karst topology, sinkholes, and to better address the symbiotic relationship between water quality and continued economic development and fiscal stability.

At a minimum, a review of each local comprehensive plan is required. While a few plans may be adequate, it is likely that almost all local plans will need to be amended. It is required by statute that planning commissions review the comprehensive plan, at least, on a five-year cycle to identify if it is appropriate to up-date. Thus, the need to review existing plans per requirements of a potential expansion of the Act's provisions does not introduce a new requirement upon local government.

Conducting the actual amendment process does have a fiscal effect upon local governments. However, updating plans for this purpose is one of the grant eligible activities for local assistance funds. During the course of bringing the comprehensive plans of Tidewater localities into compliance with the Act and its Regulations, more than $1,500,000 has been allocated through CBLAD local assistance grant. Also, there is a close relationship between the comprehensive plan guidance dealing with constraints to development and the establishment of the RPA and RMAs and the additional technical support and funding for that activity also assists in the plan up-dates . This item was

addressed previously in this section where it was noted information may be provided by the CBLAD through its GIS function.

***Implementation and Enforcement*:** How well local programs are implemented and enforced varies widely per jurisdiction. This is particularly true when the local programs are voluntary. Even with mandatory programs, there are low compliance rates as witnessed with the number of adequate E&SC programs and the poor rate of compliance with the DOF program (see Chapter IV for details).

The Act and its Regulations specifically call for the implementation of the local program and direct the Board to assure compliance. Thus, it is necessary that local governments have a specific program to handle its local program. The components of this aspect of the local program include: local monitoring and enforcement programs for violations, especially the buffer; for the processing and administration of waivers, exemptions, modifications, and exceptions; for E&SC statute compliance; for stormwater criteria compliance; for BMP agreement data base maintenance; review of development plans for compliance with the performance criteria; and an appropriate connection with the agricultural and silviculture provisions.

Because the overall program is mandatory, it is expected that there is dutiful compliance. As was pointed out during the locality meetings, planning and regulating for water quality will introduce a new demand upon some local governments and will require additional staffing that has expertise in the area. As with all components of the overall local program, the cost to local government is dependent upon existing capacities along with the quantity and the type of development that occurs. To assist localities in on-going implementation and enforcement, CBLAD has expended more than 60%, in excess of $5,400,000, of its local assistance grant funds for this purpose. Currently, 75% of the annual grant awards are for local program implementation.

Suggestions for changes*:* The locality outreach meetings also provided an opportunity for feedback to CBLAD as to how the program might change to be more effective or acceptable if it were to expand to the balance of the Watershed. The ideas that were expressed follow. Those that are recommended, by CBLAD, to be considered in any expansion program are addressed in Chapter VI.

- Having the State undertake the inventory and resource identification work that is necessary to establish the RPA and RMAs and provide an analysis of the locality's regulations to determine what regulatory approaches, if any, would be appropriate. This is somewhat like an audit approach where the state provides the information and then talks with the localities about how best a locality might comply with the formal Regulations. This is a more flexible approach than the check-list compliance approach that was used in the Tidewater program. This approach addresses the complexity issue and the localities having to devote resources to problem identification or implementing a review program that might not have true applicability to the local situation. A full program, i.e. addressing all of the performance criteria,

would not be required until the assessment was completed and an implementation program, tailored to the locality was defined.

- Creating a study commission to determine what is best for a particular area e.g. a regional-perspective approach. For simplicity, the regions would be those encompassed by the seven new planning district (regional) commissions. For some, the expansion of the Act may be an impetus to engage in water quality planning on a regional scale. For others, particularly those will minimal growth, the need would be to look at what is best for its particular area and have a more directed program. It was stated that the tributary strategy approach is confusing and that the increasing number of new state programs and activities are beginning to overwhelm and create confusion as just where to put resources and efforts. The commissions could create region-wide water quality planning and regulatory programs as opposed to a state –wide regulatory approach that may (will) not effectively address the local situation. The concept would be to do regional planning first and then the local plans and regulations. With regard to this type of approach there exists, and there are proposed, water basin authorities that address public water supply, wastewater, and conservation (quantity and quality). The Northern Shenandoah Valley Regional Commission is engaged in some activity along this general concept.

- No matter what is done, it is necessary to take a bigger view of water-quality issues. The TMDL programs, the current push for adoption of voluntary stormwater management plans, the creation of rules/regulations for facilities such as poultry processing and the like all need to be considered together. In its letter of August 31, 2001, the North Fork Shenandoah River / Holmans Creek Citizens' Watershed Committee commented on the need to avoid duplication of effort. They suggest developing an umbrella water quality program to address the tributary program, water quality improvement plans and other efforts. They make the point that of not spending all of their funds to study TMDL problems since that would diminish the ability to implement their plans. From another perspective, the Headwaters Soil and Water Conservation District, in a letter to JLARC dated September 10, 2001, addressed duplication by noting poultry litter and dairy waste are now regulated, but were not when the Act was passed, and that overlaying the Acts agricultural requirements on top of those existing ones would be expensive and unnecessary. They also pointed out existence of the DCR review of local erosion and soil control programs. A letter from the County of Rockbridge, to CBLAD dated September 12, 2001, also points to the numerous programs that have been created to improve water quality e.g ag-cost share; CREP; CRP; riparian easements; the VLCF and others that which have insufficient funding.

- Making the water quality provisions of the planning and zoning enabling statutes mandatory and establish uniformity throughout the Commonwealth

regarding water quality planning and land use regulations. Then allow the judicial system to shape the appropriateness of local compliance(s).

- Related to the above item, it was suggested to address the problem by maintaining what you have i.e. natural buffers and develop the remaining land so as not to erode the quality of state waters. It is assumed that the intent of this input was not to create a new program but use a regulatory standard that is applied throughout the watershed.

Summary, Assessment and Conclusion The is no definitive statement that can be made with respect to the effect upon local government if the Chesapeake Bay Preservation Act is extended to the balance of the Watershed. From Chapter IV it is evident that there are environmental benefits that will accrue to all. In this Chapter, the effect in terms of program development and day-to-day operations are addressed. As is evident from this Chapter, the effect upon an individual locality is dependent upon its environmental situation; the amount, type and location of development that is occurring there; the status of its plans and codes; the expertise that the locality has on staff; and other factors. However, it can be definitively stated that through the current program applied in the Tidewater area, compliance with the Act has not created any adverse effect to local government that could not be accommodated or overcome. The key to having a successful overall program is adequate technical assistance, adequate funding, and operating within the comprehensive framework that is provided in the local governmental context of planning and regulation.

It can also be stated that the current program cannot simply be applied to the expansion area by inclusion of the affected localities to the Act and have it work in an efficient and effective manner. Besides the environmental differences identified in Chapter IV, there are significant demographic differences between Tidewater and the proposed Expansion Area. The overall character of the areas is different, the development pressures are different, and the capacity to assimilate new programs varies widely between the areas and within the proposed Expansion Area itself. Chapter VI addresses changes to the current program that should be considered if an expansion is to occur.

While the cost to the state for implementation of an expansion is addressed in Chapter VII, the work undertaken to assess the impact upon local units of government stresses the need to emphasize coordination and eliminate duplication of state programs and efforts. While there are concerns expressed by some in the Tidewater area over issues of duplication and coordination, they are mainly associated with reporting requirements. In the potential expansion area, there was strong sentiment that there are numerous new programs and activities that are overwhelming the localities. The framework created by the Act and its Regulations, including the CBLAD liaison program and network seems to have been quite effective in assisting localities put their water quality planning needs into a coordinated local perspective. Thus, it seems that an expansion of the Act and its requirement for water quality planning at the local level with state assistance offers a proven way to make the overall state effort more efficient and effective.

HJR 622 STUDY: CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

VI. CHANGES TO THE CURRENT PROGRAM

This Chapter addresses the potential need for changes to existing regulations to reflect differences in the topography and geology and other items for an expansion of the Bay Act to the balance of the Chesapeake Bay Watershed. As this study progressed, it soon became evident that not only would changes need to be made to the performance criteria, but that changes would be necessary to all aspects of the program including its organization. Besides this study, CBLAD was concurrently processing a substantial change to the Act's Regulations. Hundreds of comments were received and are contained within a two-volume "response to public comment" document. CBLAD had the opportunity to consider those comments, in addition to the expansion specific testimony gained at the outreach meetings, in exploring the subject of potential changes.

Overall Framework and Organizational Matters: As stated in the assessment portion of Chapter V, the current (CBLAD) program cannot simply be applied to the expansion area by inclusion of the affected localities to the Act and have it work in an efficient and effective manner. Thus, in addition to looking at just the performance standards, the way in which the Act and its Regulations are implemented were examined.

Rethinking the legislative framework: In looking at the content of Chapter IV, the emphasis of the program is upon maintaining and enhancing the quality of all state waters. This is stated purpose in the Act that, in § 10.1-2100.A, addresses "the protection of the public interest in the Chesapeake Bay, its tributaries, and other state waters". In § 10.1-2107, the criteria to be developed by the Board are to assist localities in "regulating the use of land and development of land and in protecting the quality of state waters". In § 10.1-2109.B, C, and D, local governments are charged to protect the "quality of state waters" through changes to their comprehensive plans and land development ordinances.

In the total context of preservation of the Chesapeake Bay, the framework of preserving the main-stem of the Bay through improvement of the tributaries that feed it and the streams that feed them is basic. This is acknowledged through the existence of the tributary strategies program. However, as the waterways are further removed from the main-stem of the Bay, the connection with the Bay itself is harder to conceptualize. In

addition, considering that there should be changes to the performance criteria along with some procedural changes, the subject of changing the name of the Act or the establishment of a separate act or regulations was raised.

During the outreach meetings and in discussion with the Environmental Benefits Focus Group, it was suggested that a separate set of regulations and perhaps a separate act would be appropriate. For better understanding and acceptance a name such as the "Chesapeake Bay Rivers Act" was suggested. This name keeps both the linkage to the Bay (along with fulfilling the Commonwealth's original commitment in the Bay Agreements) and provides for a program addressing the entire watershed. Consideration was given to modifying the current Act and providing separate sections within the current regulations to address performance standards that would apply to both areas and those specific to the existing area (Tidewater) and the proposed expansion area. However, after review of the entirety of this report, it became evident that both a new act and new regulations are appropriate.

Legislative changes: To accommodate topographic and geologic matters and to provide for an effective liaison and review program, it is suggested that those localities that are within a planning district commission that is already under the Act be added to the definition of "Tidewater Virginia" contained in § 10.1-2101. These localities are listed in Table VI-1. They would be subject to the Act and its Regulations as they exist at the time of expansion and would proceed under the same program development approach that was used for the original Tidewater localities. Table VI-2 shows the number and type of localities for the current Act and a new Act.

Table VI-1 Potential Localities to be added to the current Chesapeake Bay Act

PDC/RCs already in the Act	**V. Localities**
#15 Richmond Regional PDC	Goochland County, Powhatan County,
#08 Northern Virginia PDC	Loudoun County; Cities of Manassas and Manassas Park; Towns of Hamilton, Hillsboro, Leesburg, Lovettsville, Middleburg, Purcellville, and Round Hill
#19 Crater PDC	Dinwiddie County

Table VI-2 Potential Localities per Existing Act and Expansion Act

Type of jurisdiction	Current Assignment		Potential Assignment	
	Tidewater	Expansion	Tidewater	Expansion
Counties	29	36	33	32
Cities	17	11	19	9
Towns	38	57	45	50
Totals	84	104	97	91

The ninety-one (91) remaining expansion localities would be included in a new act. The language of the new act could essentially mirror that of the existing act with the exception of its title and the "definition" of the subject localities. The composition of the Board could remain at nine (9), thus accommodating the potential for two at-large members. The significant change with regard to the legislative/regulatory program would occur in the regulations associated with the new act.

Changes for the new Regulations: The regulations for the expansion area could be in a format that follows the existing Regulations. However, changes should be considered with regard to the following items.

Planning preceding regulation: In order to place more emphasis upon accommodating water quality enhancement as a part of the development process instead of having it viewed more as a structural and regulatory program, there should be an earlier focus upon water quality and land use planning. Thus, it is suggested that the requirement for incorporating water quality protection into comprehensive plans (current § 10.1-2109.B) be the first aspect of a local program. However, in order not to prolong implementation of local regulatory programs, it is possible that a set of regulations that specifically address the comprehensive plan component be prepared and adopted within six months of legislative action. Thus, the local planning component would commence concurrent with the preparation of the performance standards aspect of the new regulations. This approach can have built-in flexibility that will allow the resulting, local regulatory program to be better tailored to the locality and not be subject to the "one-size" criticism that has been made of the existing program. However, there should not be a requirement that the planning phase be completed prior to creating and implementing the local regulatory program.

Sliding scale with regard to the timing of compliance: As a part of the initial set of expansion regulations, consideration might be given to establishing a sequence for compliance so that resources and program development is directed to the areas with the most need. One approach would be to classify the localities in terms of growth and water quality characteristics. A phasing program could be established so that all 91 localities are not preparing programs and competing for funds simultaneously. Those localities identified with a combination of negative or no-growth and no, or minimal, water quality impairment could be scheduled for review in the later years while those with most immediate impact upon water quality, with respect to new development, would be addressed in the first phases.

Resource area designations and performance criteria: The types of items that will need to be considered are in the following section of this Chapter. A stakeholder process should be used as was done in the establishment of the original regulations and as was used in the recent major modification of those regulations for the preparation of new regulations. Adequate resources would need to be allocated for this undertaking (see information in Chapter VII).

Designation and Performance Criteria: The approach that exists in the current Regulations, i.e. the designation of resource areas (RPAs and RMAs) and of performance criteria that applies to them, remains appropriate and should not be changed. However, as identified through the outreach meetings, by the Environmental Benefits Focus Group, and by the content of Chapter IV, there will need to be changes to the resource protection area and resource management designation criteria and the performance criteria. In addition, as noted in Chapter II, there are currently a few legislative studies that are being undertaken concurrent with the preparation of this report and the results from those studies should be reviewed to assure that their recommendations are appropriately considered if an expansion does occur.

The criteria for resource area designations and performance criteria would need to be addressed through the development of new regulations that address the topics that are addressed below in an abbreviated form. Please refer to Chapter IV for more information about the environmental characteristics and the performance standards. In addition to, or in conjunction with, those items, consideration should be given to impacts from sediment deposition (over the long term as opposed to the control of construction sediment) and the protection of habitat. Neither is specifically addressed under the current regulations.

RPAs - - considerations: In the Tidewater area, for the most part, non-tidal wetlands have connections to tidal waters through surface flow. In the proposed Expansion Area, karst topology presents a need to look at *isolated non-tidal wetlands* in a new perspective. This examination will need to look closely at the recently created non-tidal wetland permitting program that is under the auspices of the Department of Environmental Quality (DEQ) and insure that any resulting regulatory requirements are complimentary to each program and do not result in duplication or redundancy.

The characteristics of flood plains in the proposed Expansion Area are different from the flood plains in the coastal areas where flooding is influenced by tides and off coast storms. In the proposed Expansion Area, the *flood plain* should be examined as a potential RPA feature with regard to hydrologic benefits and water quality considerations and not just (storm) event damage minimization.

Due to the prevalence of livestock operations in the proposed Expansion Area, specific attention needs to be focused upon if, when, or under what conditions, *farm ponds* are, or are not, an RPA feature.

In a few Tidewater areas, localities have added the characteristic of *steep slopes* to their RPA designation criteria. This occurs mainly in areas where erosion and the resulting sediment deposition are of concern. In the proposed Expansion Area, due to the topography, there are many more situations where drainage doesn't sheet flow, but goes through land adjacent to RPA features at high velocity. This presents problems both in terms of erosion and sedimentation and with regard to carrying pollutants to the waterways without being filtered through the buffer. Thus, the way in which *steep slopes* relate to the purpose of the RPA needs to be examined.

Also within the RPA definition, attention must be placed upon the *100-foot buffer*. In the current regulations, it is measured from streams and the adjacent RPA feature and it is measured in a horizontal distance. In the mountainous topography of portions of the proposed Expansion Area considerations, this approach would result in the ground length of the RPA buffer being 130 feet for a 40-degree slope and 200 feet for a 60-degree slope. However, as noted above, the concern is with maintaining the function of the buffer and not just a numeric calculation. Thus, as was done when developing the original regulations, the way the buffer is defined will need to be closely examined.

RMAs - - considerations: As was expressed at some of the outreach meetings, the current policy of identifying a RMA primarily through highly erodible soils (with a slope factor component), highly impermeable soils, and flood plains would place nearly all of the proposed Expansion Area into it. While this may be viewed as a positive step for environmental enhancement, i.e. having an entire jurisdiction as a RMA/RPA, the downside is that characteristics more unique to the karst topology such as wellhead protection, the protection of drinking water sources including springs, and dealing with sinkholes may not receive the attention that is necessary to adequate work the protection and enhancement of the quality of state waters unless they are specifically identified as a basis for the RMA designation. Thus, the very basis for the designation of the RMA in the proposed Expansion Area must be reviewed and revised.

Performance Criteria: At the present time, all of the performance criteria should be continued into the proposed Expansion Area. However, realizing that there will be a time period of 18 to 24 months necessary for the preparation and adoption of regulations, it is necessary, going into the process, to draw from the work of the karst study, the wastewater study, and other legislative studies and adjust the existing performance criteria appropriately.

Of the eleven performance criteria, the *three general criteria* (minimizing land disruption, preserving natural vegetation, and minimizing impervious cover impacts) would certainly continue to be applicable and addressed through the low-impact site design and technologies and better site design approaches being pioneered, in Virginia, by CBLAD. Likewise, the buffer management strategies for which CBLAD has provided guidance will continue to be applicable with some changes necessary to accommodate the differences in the native vegetation of the regions within the proposed Expansion Area.

The two criteria dealing with stormwater management should not have to change since the currently proposed changes to the Regulations incorporate the State's Stormwater Manual guidance and provide for a cooperative and coordinated approach between DCR and CBLAD in addressing stormwater matters.

As noted in Chapter IV, the difference between the Bay Act requirements and the State's Erosion and Sediment Control (E&SC) law is that the threshold is at 2,500 square feet under the Act as opposed to 10,000 square feet under the E&SC law. Given that two-thirds ($2/3^{rds}$) of the Commonwealth would be subject to the lower threshold with an expansion of the Act, consideration could be given to modifying the E&SC requirement.

This would also help in reducing some confusion and coordination issues associated with administration and enforcement of the E&SC law and the Bay Act.

As directed through HJ 771, issues associated with individual wastewater treatment, primarily septic systems, need a thorough and comprehensive look across the Commonwealth. The requirements of the Act and its Regulations may be better integrated into such a comprehensive program. Thus, this relationship should also be a focus in the preparation of new or revised regulations for the Expansion Area. The remaining performance criteria (addressing agricultural operations, silviculture, and wetland permitting) should not require extensive change or adjustment given recent program and procedural changes that have been effected by CBLAD.

Program development: The development of the overall program must take into consideration the changes that have occurred since adoption of the original Bay Act and its Regulations. The Commonwealth has instituted several new programs since the late 1980's and early 1990's. The Commonwealth has new obligations with regard to the Bay Agreement and the commitments contained therein. Also, it must consider the impact upon local governments, not just in terms of technical and financial assistance (described in Chapters V and VII) but also in terms of actual, day-to-day, implementation of the program. As stated in § 10.1-2100.B, "local governments have the initiative for planning and implementing" the provisions of the Act. The Commonwealth has the obligation of acting in a supportive role by establishing the criteria and providing the resources necessary to carry out and enforce the Act. A part of this obligation is to ensure that State programs do not result in redundancy and that the requirements imposed by the multiple programs of the State do not burden the administrative capacity of local governments.

In developing the program for the proposed Expansion Area, its relationship to the tributary strategies, the TMDL program, the E&SC program, and VPDES programs along with other activities must be considered. As was suggested at one of the outreach meetings, "weave it, don't stack it".

HJR 622 STUDY: CHESAPEAKE BAY PRESERVATION ACT - EXPANSION

RESOLVED FURTHER, That the Chesapeake Bay Local Assistance Department be requested to submit to the Commission for inclusion in Commission's interim report (i) **an assessment of the benefits to the environment, along with the costs and effects to state and local governments of extending the Act to include localities outside of "Tidewater Virginia" that are within the Chesapeake Bay watershed**; (ii) **the potential need for changes to existing regulations to reflect differences in the topography and geology for such an expansion; and (iii) the financial resources needed in the form of state implementation grants to local governments for such an expansion**. The Department shall complete and submit its findings and recommendations to the Commission by October 20, 2001.

VII. STATE FINANCIAL RESOURCE NEEDS - STATE GRANTS AND COSTS TO THE STATE

This Chapter addresses the financial resources needed in the form of state implementation grants to local governments and the costs to state government of expanding the Act to the balance of the Watershed. § 10.1-2100.B provides that local governments have the initiative for planning and for implementing the provisions of the Act, and the Commonwealth shall act primarily in a supportive role by providing oversight for local government programs, by establishing criteria, and by providing those resources necessary to carry out and enforce the provisions of the Act. The obligation for providing oversight is conducted through the Chesapeake Bay Local Assistance Department and is addressed in this Chapter in the Section, State Program Operation. The obligation for providing the resources necessary to carry out and enforce provisions of the Act is addressed through the CBLAD grant programs.

Grant Programs: The Department operates two grant programs that provide resources to carry out the program at the local level. These are the Agriculture Water Quality Grants Program and the Local Assistance Grant Program. A third category is the Technical Assistance Grant Program. It is used for research, pilot/demonstration projects that are transferable, and for projects that have general applicability (such as the Better Site Design in Virginia report). For the purpose of this report, only the first two categories are analyzed.

Agriculture Water Quality Grant Program (Farm Plans): The description of what constitutes a soil and water quality conservation plan (SWQCP) and how it varies from a nutrient management plan is provided in Chapter IV. Historic information on the production of SWQCP plans is provided in Table VII-1. In 1992, the estimate of the number of plans needed for compliance was 25,382. Approximately 22% of that number has been provided to date. The lesser amount of acreage per plan and the increasing cost in recent years is due, in part, to the preparation of plans for small, horse and hobby based farms in the Northern Virginia area.

VI. Table VII-1	CBLAD Program Farm Plan Production			
	10 year history	*Annual average*	*Last year figures*	
Funding	$3,987,006	$398,700	$459,885	
Plans*	5,813	581	701	
Acres	281,733	28,173	24,481	
Linear feet of buffer protected**	4,514,498	451,450	217,616	
Acres of buffer protected	5,208	520	236	
Acres of buffer created/restored	*** 191	48	24	
Cost of plan/acre	$14.15	$14.15	$18.79	

* number of plans is greater than the number of farms; i.e. multiple plans per farm

** one side measurements) (25', 50', and 100' buffers *** four years of data

Progress in producing SWQCP plans to cover the entire area subject to the Act is relatively slow. The progress is dependent upon funding. In recent years (FY 98 to FY 01), the funding for these plans has increased from an initial level of $375,000 per year to a current level of approximately $460,000 per year. The current rate of SWQCP production (over the past three years) approximates 740 per year. Thus, at current funding and production levels, the current task would not be complete until around 2025. The rate of production should increase significantly however, given changes to the Regulations that are currently being processed. These changes allow use of an assessment process and incremental modifications to current nutrient management plans. The anticipated result will be a lower average cost for the production of compliant plans and an increase the annual number of compliant plans.

Table VII-2 provides information for a comparison between the Tidewater Area and the potential Expansion Area in terms of potential demand for plans.

Table VII-2	Comparison Table – Farm Plans		
	Expansion Area	*Tidewater Area*	
# of farms	15,145	4,369	
Acreage	3,041,713	1,180,219	
Average size (ac)	200	270	
Cropland acres	797,151	718,290	
Livestock Farms (total)	12,257	1,929	
Beef Cow Farms	8,835	1,182	
Dairy Farms	812	74	
Sheep Farms	860	134	
Poultry Farms	1,290	340	
Hog Farms	460	199	

As pointed out in Chapter IV there is a difficultly in projecting the number of plans that will need to be undertaken due to the very different nature of the agriculture industry in the potential Expansion Area due to the high incidence of livestock farms. The above Table does not provide information regarding livestock acreage per type of farm. However, by subtracting the cropland acres from the overall acreage an allocation of 461,929 acres in Tidewater and 2,244,562 acres in the potential Expansion Area is derived. The expansion area acreage however is probably excessive since it may include woodlands in which grazing occurs. Notwithstanding the complexities associated with livestock plan estimates, the situation with regard to cropland is more straight-forward in that nutrient management and cost-share activities do occur in the potential Expansion Area. The Shenanhoah/Potomac River Basin Tributary Strategy reports that 280,000 acres have nutrient management plans.

For the purpose of projecting costs there is no special formula. It simply comes down to priorities and the availability of resources. For the purpose of projecting implementation costs, the CBLAD extrapolation method used for the fiscal impact of SB 821 considered a relationship between the number of units of government and the difference in total land area with a resulting additional annual allocation of $750,000 for farm plan development. While other scenarios could be created, the annual allocation of $750,000 is conservative but reasonable given the great demand that exists.

Local Assistance Grant Program: The local assistance grant program is the major vehicle for the actual development and implementation of the local programs. The Chesapeake Bay Local Assistance Department annually requests proposals for projects to implement the Chesapeake Bay Preservation Act and Regulations. Tidewater planning district commissions and local governments that implement the Bay Act are eligible to apply for funding. Once the proposals are received, they are evaluated by Department staff, scored by a committee of local government representatives and staff of other state agencies, and assessed by the Chesapeake Bay Local Assistance Board's Grants Committee. Awards are announced in late winter after consideration by the full Board, and projects run from July to June (corresponding with fiscal years). Grant funds are distributed on a quarterly reimbursement schedule, following receipt and approval of progress and financial reports and deliverables.

Table VII-3 provides historic information about the local assistance grant program since its inception. The information is provided by the type of jurisdiction to which the grant was awarded i.e. counties, cities, towns, and planning district (regional) commissions; and, by its use for Phase I (area identification, codes, and activities) program development, Phase II (comprehensive planning) development, and on-going program implementation. Figures VII 1 through 6 show the allocation of the funding for various purposes or among various jurisdiction types. The data from the table and expressed in the figures were used to create the scenarios that are described in the following section.

Table VII-3	**CHEASPEAKE BAY LOCAL ASSISTANCE DEPARTMENT** *LOCAL ASSISTANCE GRANT PROGRAM PROGRAM HISTORY*				
Unit of Government & #		***Amount***	***I - Dev.***	***I - Imp.***	***II - Dev.***
1991					
Counties	37	600,157	314,734	285,423	0
Cities	17	341,600	150,774	190,826	0
Towns	6	54,294	54,294	0	0
PDCs	7	115,000	8,500	106,500	0
TOTALS	67	$1,111,051	$528,302	$582,749	0
1992					
Counties	20	249,707	49,936	199,771	0
Cities	7	48,451	43,867	4,584	0
Towns	9	62,191	34,421	27,770	0
PDCs	8	138,222	79,986	58,236	0
TOTALS	44	$498,571	$208,210	$290,361	$0
1993					
Counties	33	549,702	183,049	366,653	0
Cities	9	159,291	39,805	120,206	0
Towns	4	58,906	42,099	16,807	0
PDCs	6	210,342	91,375	65,367	53,600
TOTALS	52	$978,241	$356,328	$569,033	$53,600
1994					
Counties	24	522,903	42,284	480,619	0
Cities	8	152,377	56,954	95,423	0
Towns	4	46,175	28,000	18,175	0
PDCs	9	211,657	80,070	97,865	33,722
TOTALS	45	$933,112	$207,308	$692,082	$33,722
1995					
Counties	19	405,438	81,400	324,038	0
Cities	7	150,000	0	150,000	0
Towns	0	0	0	0	0
PDCs	5	114,163	14,163	75,000	25,000
TOTALS	31	$669,601	$95,563	$549,038	$25,000
1996					
Counties	26	442,933	79,957	362,976	0
Cities	11	217,950	20,950	197,000	0
Towns	0	0	0	0	0
PDCs	7	158,500	18,500	100,000	40,000
TOTALS	44	$819,383	$119,407	$659,976	$40,000
1997					
Counties	25	468,696	44,848	418,848	5,000
Cities	7	157,200	0	157,200	0
Towns	1	5,000	0	0	5,000
PDCs	12	219,717	63,555	70,664	85,500
TOTALS	45	$850,613	$108,403	$646,712	$95,500

Unit of Government & #		*Amount*	*I - Dev.*	*I - Imp.*	*II - Dev.*
1998					
Counties	18	365,068	76,637	160,441	127,990
Cities	7	162,228	0	61,795	100,433
Towns	3	31,000	3,000	0	28,000
PDCs	12	164,677	15,400	41,350	107,927
TOTALS	40	$722,973	$95,037	$263,586	$364,350
1999					
Counties	13	339,197	11,000	171,141	157,056
Cities	3	92,989	0	30,000	62,989
Towns	2	26,400	0	0	26,400
PDCs	5	104,421	10,000	20,000	74,421
TOTALS	23	$563,007	$21,000	$221,141	$320,866
2000					
Counties	11	281,857	6,250	164,038	111,569
Cities	4	125,503	24,000	0	101,503
Towns	1	48,888	0	48,888	0
PDCs	7	122,034	20,000	21,105	80,929
TOTALS	23	$578,282	$50,250	$234,031	$294,001
2001					
Counties	10	255,421	0	217,721	37,700
Cities	6	139,020	44,020	28,000	67,000
Towns	3	81,877	11,500	50,377	20,000
PDCs	4	120,111	20,000	47,111	53,000
TOTALS	23	$596,429	$75,520	$343,209	$177,700
2002					
Counties	9	281,843	0	231,843	50,000
Cities	1	36,000	0	36,000	0
Towns	1	55,448	0	55,448	0
PDCs	3	120,140	20,000	45,490	54,650
TOTALS	14	$493,431	$20,000	$368,781	$104,650
CUMULATIVE					
Counties	245	4,762,922	890,095	3,383,512	489,315
Cities	87	1,782,609	380,370	1,071,034	331,925
Towns	34	470,179	173,314	217,465	79,400
PDCs	85	1,798,984	441,549	748,688	608,749
TOTALS	451	$8,814,694	$1,885,328	$5,420,699	$1,509,389
	Number	***Amount***	***I - Dev.***	***I - Imp.***	***II - Dev.***

Figure VII-1

T.A. Grants by Program Element

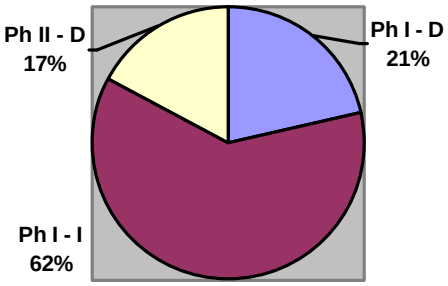


Figure VII-2

Local Assistance Grant Allocations by Jurisdiction

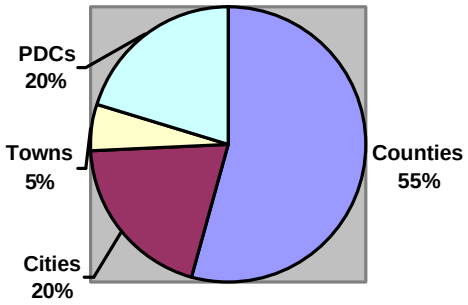


Figure VII-3

Phase I Development - Allocation by Jurisdiction Type

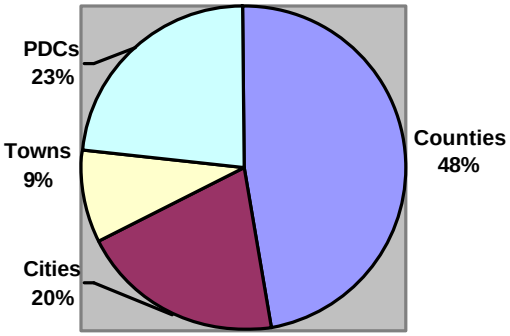


Figure VII-4

Phase II- Allocation by Jurisdiction

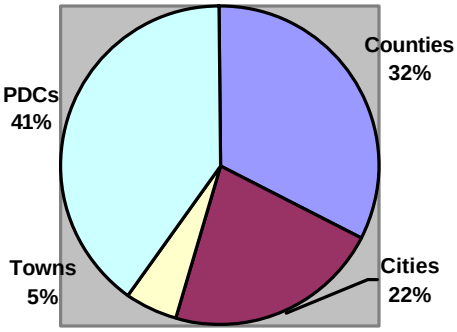


Figure VII-5

Phase I Development - Allocation by Use

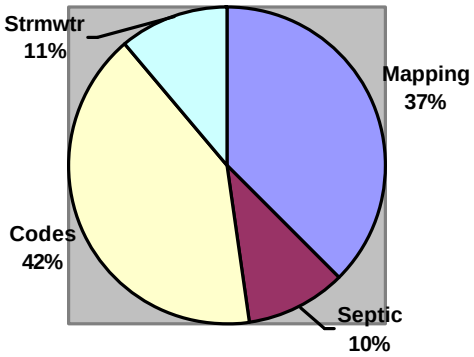
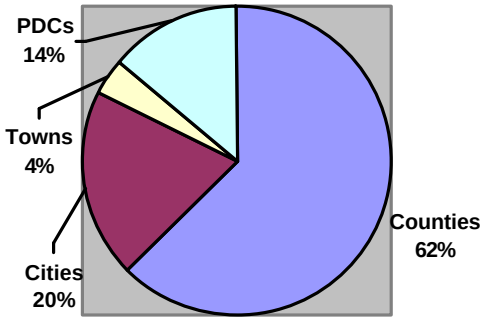


Figure VII-6

Phase I Implementation - Allocation by Jurisdiction Type



State Program Operation: Following are four projections or scenarios to address the financial resources needed in the form of state implementation grants to local governments and the costs to state government of expanding the Act to the balance of the Watershed. The first two were previously provided when SB 821 was considered. These include the CBLAD budget estimate and the FIS that was prepared for SB 821. The next two are scenarios developed after taking into consideration the detailed CBLAD program history and content of this report in terms of possible changes to the overall program.

***Data and Analysis – CBLAD Extrapolation Budget Estimate for SB 821*:** Table VII-4 is a condensation of the table and data sheet that was prepared by CBLAD as input to the deliberations on SB 821. The full table and data sheet along with the narrative that provides the methodology for each item is contained in the appendices. In general, the methodology is that of extrapolating current program costs by a percentage factor relating to the increase in work demands. The factors were based upon increases in the number of units of local government being served, increases in land area, and proportional increases in staffing. A factor of 108 additional units of government was used as opposed to the number of 104 that is suggested in Chapter three of this report. Also, the existing need included the current year (2001) budget allocation supplemented by a supplemental appropriation amount that was included in the Department's decision package submission. While this approach provides a quick and general indication of annual costs at the full operation of the program, it did take into account how a program tailored for the potential Expansion Area would be developed and phased in over a reasonable period of time.

Table VII-4 CBLAD – DEPARTMENT BUDGET PROJECTIONS FOR SB 821

CATEGORY	*Existing Need*	*Expansion*	*Total*	
Personnel & Operations	1,585,856	2,038,958	3,624,814	
Operations Supplement	114,114	0	114,144	
Space/Equip set up (1x)	0	490,000	490,000	
Remote Office Ops	0	50,000	50,000	
Competitive Grants	571,962	1,690,393	2,262,355	
Comp Grant Supplement	728,158	0	728,158	
Agricultural Grants	468,500	750,000	1,218,500	
Ag Grant Supplement	31,500	0	31,500	
WQ Monitoring Suppl.	150,000	0	150,000	
TOTALS	3,650,120	5,019,351	8,669,471	
AGENCY MEL	Existing	Expansion	Total	
Appointed	1	1	1	
Classified	20	29	49	
TOTALS	21	30	51	

***Data and Analysis – DPB FIS for SB 821*:** Figure VII-7 reflects the Fiscal Impact Statement that was prepared for the Senate Committee on Agriculture, Conservation and Natural Resources during its deliberation of SB 821. The budget implications in this FIS dealt with the first two years of operation assuming immediate start-up with almost full staffing. While detailed personnel information is provided with regard to new personnel and positions categories, it is not used later in this report due to changes in the position classification system. Instead new assumptions for projections were created.

Figure VII-7 2001 Fiscal Impact Statement – SB 821

Expenditure Impact

FY 2001-02	$2,255,583	10 FTE General Fund
FY 2002-03	$2,998,433	12 FTE General Fund

Fiscal Implications: The Chesapeake Bay Local Assistance Department (CBLAD) states that this bill will increase its regulatory and administrative responsibilities, resulting in additional workloads that cannot be absorbed within current resources.

Financial Assistance: There are currently 84 counties, cities, and towns that are subject to the Chesapeake Bay Act and Regulations. Section 10.1-20.3 of the Code of Virginia requires the Chesapeake Bay Local Assistance Board to provide financial assistance to the affected localities for implementation of the Chesapeake Bay Act. All financial assistance is done through CBLAD and currently $1,040,462 is appropriated each fiscal year for that purpose. CBLAD indicates that this amount is not enough to support the needs of 108 additional localities. CBLAD states that an additional $750,000 would be needed each year for Agricultural Implementation Grants. An additional $845, 196 would be needed in Fiscal Year 2002 for the Competitive Grant Program and $1,690,393 in Fiscal Year 2003.

Operating: This legislation will expand the provisions of the Chesapeake Bay Act to include the majority of the Piedmont and Shenandoah Valley regions of Virginia. CBLAD states that a new field office would need to be located in Staunton or Harrisonburg to accommodate the additional localities. At CBLAD's inception, program personnel spent a large amount of time in the affected localities in order to provide assistance and gather the information necessary to implement the program. Due to the remote locations of a number of the expanded localities, CBLAD states that it would not be a feasible to operate these programs out of the Richmond office. Based on a comparison of similar size office space, CBLAD states that it would cost approximately $50,000 each year in rent and utilities to operate an office for approximately 12 employees.

Personnel: The expansion will not only require additional personnel to handle the review of localities' comprehensive plans and ordinances, but would also require additional regulations to be developed for the new localities due to the difference in the geological makeup of the regions. CBLAD states that regulatory, review, and board support activities, as a result of this legislation will require twelve additional classified positions costing a total of $464,540. Of these twelve positions, nine (three Environmental Specialist II ($42,336 each), three Environmental Specialist I ($35,426 each), one Information Technology Specialist I ($44,265), one Administrative and Program Specialist IV ($29,933), and one Program Administration Practitioner I ($38,727) would be needed starting in Fiscal Year 2002. Two additional positions (two Environmental Specialist I ($35,426 each) would be added in Fiscal Year 2003. The new field office will require one additional classified position (Administrative and Program Specialist I ($14,676)) to handle general office duties starting in Fiscal Year 2002.

One-time costs to provide modular offices, furniture, two vehicles, and equipment for the new positions will be $246,000 in Fiscal Year 2002 and $40,000 in Fiscal Year 2003. Expenses for the additional six board members are estimated to be $3,500 each year.

***Data and Analysis – CBLAD Scenario # 1 - - Direct expansion*:** The purpose of creating this scenario is to present an alternative to the extrapolation method that relied upon a very generalized approach based upon the number of additional jurisdictions and land area that would be subject to the Act and its Regulations. This scenario draws more from the actual experience with respect to accommodating the needs of local governments, through providing financial and technical assistance, in their preparation of programs and on-going implementation.

Assumptions and parameters used for this scenario include the following:

- The first two years of the new program would involve preparation of new or revised regulations, temporary additional office space, and five professional staff (project manager, environmental specialist in karst topology, an engineer, and two planners one of which would have expertise in GIS and data systems);
- During the first two years, local assistance grant program funds will be used in the expansion area for pilot type program development activities;
- The local programs would be developed and reviewed in the same manner that was done for the Tidewater Area;
- There would be no appreciable change in the performance standards or the manner in which they are applied;
- Ultimate staff would be based on the same formula that is now used of one liaison for each PDC/RC, each of which would have an additional area of expertise with additional support in the environmental engineering division of three personnel, additional administrative support of two personnel, a field office manager, and a program manager;
- There would be one additional staff member who would take on responsibilities dealing with the Bay Program commitments that are now handled by the Chief of Environmental Planning, as that position will have greater responsibility and less time to deal with the Bay Program.
- Costs associated with outfitting and housing the 15 new positions are updated from the SB 821 analysis in order to reflect the current personnel classification system.
- The farm plan grant allocation remains constant at the $750,000 per year described earlier in this chapter;
- The technical assistance grant program is more reflective of the allocations made based upon the type of program and type of jurisdiction as experienced in the Tidewater program. A spreadsheet and explanatory narrative is provided in the appendicies.
- The costs for the Tidewater program remain constant (without consideration of merit pay increases as allowed by the general assembly) as the overall program continues with the Phase III aspect, on-going implementation review

and enforcement, and overall program enhancements including Bay Program commitment activities.

Table VII-5 CBLAD –BUDGET PROJECTIONS FOR SCENARIO #1					
CATEGORY	Current Budget	Expansion (annual)		Totals (annual)	
		1st 2 years	Full operation	1st 2 years	Full operation
Personnel & Operations	1,585,856	307,100	844,251	1,892,956	2,430,107
Remote Office Ops	n/a	n/a	50,000	0	50,000
Local Assistance Grants	571,962	50,000	797,454	621,962	1,369,416
Agricultural Grants	468,500	50,000	750,000	518,500	1,215,800
Space/Equip set up (1x)		62,500	232,500	One time cost	One time cost
TOTALS	2,626,318	407,100		3,033,418	5,065,323
AGENCY Maximum Employee Level (MEL)					
Appointed	1	0	0	1	1
Classified	20	5	15	25	35
TOTALS	21	5	15	26	36

***Data and Analysis – CBLAD Scenario # 2 - - Modified program expansion*:** The main difference between the scenarios occurs during the first two years. Scenario #2 envisions a concerted effort to proceed immediately with the recommendation contained in Chapter VII that pertains to engaging in water quality planning concurrent with development of new regulations. Also, the more intensive activity in the first two years prepares for a highly productive implementation program commencing in year three.

Scenario #2 is not substantially different from scenario one in its long-term (full operation) aspects when considered over time i.e. with the local assistance grant program allocations averaged over a period of time. But it does recognize a "phasing-in" of compliance actions based upon a strategy to address the most immediate needs (i.e. a focus upon areas with higher growth rates, existing water quality problems, and more RPA features).

Other than the above, the assumptions associated with Scenario #1 applied to Scenario #2.

Table VII-6 CBLAD –BUDGET PROJECTIONS FOR SCENARIO #2					
CATEGORY	Current Budget	Expansion (annual)		Totals (annual)	
		1st 2 years	Full operation	1st 2 years	Full operation
Personnel & Operations	1,585,856	366,215	844,251	1,952,071	2,430,107
Remote Office Ops	n/a	12,500	50,000	12,500	50,000
Competitive Grants	571,962	150,000	797,454	721,962	1,369,416
Agricultural Grants	468,500	50,000	750,000	518,500	1,215,800
Space/Equip set up (1x)		62,500	232,500	One time cost	One time cost
TOTALS	2,626,318	578,715		3,205,033	5,065,323
AGENCY MEL					
Appointed	1	0	0	1	1
Classified	20	5	15	25	35
TOTALS	21	5	15	26	36

Estimated Costs:

Comparison of projections: Table VII-7 provides a comparison among the initial CBLAD estimate for implementation of SB 821 and the two scenarios crafted for this report. There are some items reflected in the SB 821 analysis that were not previously considered in the expansion analysis. These items include $114,114 for an operations supplement, a $728,158 competitive grant supplement, a $31,500 agricultural grant supplement, and $150,000 annually for continuation of the special water quality-monitoring program at Polecat Creek. When considering the expansion, the supplemental appropriation requests for grants have not been continued. The agricultural issue was noted earlier by acknowledging that the demand far exceeds currently available resources and that a $750,000 annual appropriation for the expansion was reasonable. A portion of the local assistance grant program supplemental need will be accommodated as program development demands diminish in the Tidewater Area. While the supplement for the local assistance grant program is no longer being carried in the expansion analysis, it is likely that demand from the affected localities for additional program implementation funding may have such a request resurface in the future. Additional funding for the Polecat Creek project is retained as that project is viewed as being a critical component of the overall mission of CBLAD.

Based on the information provided in Table VII-7 and the narratives, it is suggested that the figures shown for Study Scenario #2, both the short-term (2-year cycle) and the long-term (annual average for full operation over a significant period of time) be used for budgetary planning and fiscal impact analysis purposes.

Table VII-7 CBLAD – DEPARTMENT BUDGET PROJECTIONS FOR EXPANSION

CATEGORY	Estimate for SB 821		Study Scenarios		
	Existing Need	Total	#1-S	#2-S	#2-L
Personnel & Operations	1,585,856	3,624,814	1,892,686	1,952,071	2,429,837
Operations Supplement	114,114	114,144	114,144	114,144	114,144
Remote Office Ops	0	50,000	0	12,500	50,000
Competitive Grants	571,962	2,262,355	621,962	721,962	1,369,416
Comp Grant Supplement	728,158	728,158	n/a	n/a	n/a
Agricultural Grants	468,500	1,218,500	518,500	518,500	1,215,800
Ag Grant Supplement	31,500	31,500	n/a	n/a	n/a
WQ Monitoring Suppl.	150,000	150,000	150,000	150,000	150,000
TOTALS	3,650,120	8,179,471	3,297,292	3,469,177	5,329,197
Space/Equip set up (1x)	0	490,000	62,500	62,500	232,500
AGENCY MEL					
Appointed	1	1	1	1	1
Classified	20	49	25	26	35
TOTALS	21	51	26	27	36

Potential Offsets to Program Operation Funding: The CBLAD program is presently funded through the general fund with only a $60,000 supplement from the Bay Program Implementation Grant for Virginia and minor incidental grants that are for specific short-term projects. Previously, there had been funding through a combination of sources including the Coastal Zone Management Program, the Bay Program Implementation Grant Program, and the General Fund. These funding sources and the overall structure of the Commonwealth's non-point source (NPS) funding programs were briefly reviewed to see if there was opportunity for consolidations or shifting of priorities for funding.

Within the NPS program and the Bay Program implementation grant (EPA) there is a considerable amount of funding allocated for the preparation of nutrient management plans. Approximately $550,000 is allocated through the Bay Program Implementation Grant. The Environmental Program Funding Synopsis report, prepared with regard to the Chesapeake Bay 2000 Agreement commitments, identifies over $500,000 for the SWCD function. In addition, NRCS provides funding for nutrient management plans. It seems that closer coordination among these funding programs could result in changes to their products and adjust them to Bay Act farm plans when the farm parcel has an RPA designation. As noted previously in this Chapter, the demand for plans exceeds short-term resources and the program for farm planning is ongoing. Thus, a program accommodation could achieve the result mandated by the Act and its Regulations with only an incremental impact on the overall production of nutrient management plans (i.e. accommodation of the difference in costs between the different types of plans). This is particularly appropriate for the start-up period when the Bay Act farm plans are applied to the livestock operations in the expansion area. Also, there are existing programs for the confined animal operations and poultry operations that would remain separate from the provisions of the Act and its Regulations.

The Water Quality Improvement Act/Fund provides varying amounts of funding for projects, studies, and plans. The amount is dependent upon an allocation from the state legislature. The WQIA/F cannot be identified as a stable source of funding for the expansion program; however, in many instances the fund has been used for projects that compliment the goals of the Act, its purposes, and its performance standards. Thus, it may be used to reinforce the local assistance grant program especially with regard to program development (examples include funding for stormwater management projects, on-site wastewater improvement programs including pump-out programs – a list of WQIA funded projects in contained in the appendices). Providing a grant award criteria that relates to the Act and its Regulations would aid in directing the funding to better address priority water quality needs in the Commonwealth.

The Bay Program Implementation grant, in addition to the $1,202,489 (federal funds only – there is a 50% match) focused upon agricultural activities, contains approximately $200,000 in staffing and support for non-mandated community and watershed focused planning. Given the mandatory nature of the Act and its Regulations, it would be

appropriate to consider a shift in priority for those funds and direct them to the operational side of the expansion program. Additionally, the grant contains approximately $180,000 for in-direct or one-time projects and another $180,000 for studies that will be completed in the present grant cycle. As a matter of priority setting, this type (amount) of funding could be directed to the expansion program as it is demonstrated in Chapter IV that the expansion is definitively a direct implementation of the Bay Agreement in the Commonwealth.

Given the potential for off-set opportunities in-lieu of full general fund financing, the potential for coordinating and collaborating with other state programs to reduce the "stand-alone" implementation of an expansion program. A summary of the information discussed above is shown in Tables VII-8 and 9.

Table VII-8	***Additional Program Costs, Initial Budget Period***			
Purpose	*Annual Costs* ***Initial*** *Budget Period*	*General Fund*	*Other Sources*	
Operations	$ 378,715	$ 190,000 1st half of Va Fiscal Year	Consideration of reprioritization of theBay Program Implementation Grant (EPA)	
Local Assistance Grants	$ 150,000	$150,000	Although other sources may be used on a case-by-case basis, planning should be through the general fund.	
Agriculture Grants	$ 50,000	$ 0	Work in concert with existing programs for Applying Bay Act farm plan concepts in the proposed Expansion Area	

Table VII-9	***Additional Program Costs, Sustained Program***			
Purpose	*Annual Costs* ***Sustained*** *Program*	*General Fund*	*Other Sources*	
Operations	$ 894,251	$ 447,125	50% match to the balance from the Bay Program Implementation Grant (revised priorities)	
Local Assistance Grants	$ 797,454	$797,454	For planning purposes, the total anticipated should be considered as a general fund obligation although it may be supplemented by other sources.	
Agriculture Grants	$ 750,000	$500,000	Work in concert with existing programs for Applying Bay Act farm plan concepts in the proposed Expansion Area	

ATTACHMENTS TO THE DRAFT:

FULL STAFFING, EXPANSION PROGRAM						
# FTE	Salary	Total	Fringe 28%	Total	Grade/Step	Position description
8	46,183	369,464	103,450	472,914	13 - - 11	Environmental Specialist II (7 Liaisons, 1 Bay Program)
3	46,183	138,549	38,794	177,343	13 - - 11	Environmental Specialist II (Karst, Civil, Technology
1	42,247	42,247	11,829	54,076	12 - - 11	Financial & Audit Services Manager I
2	27,060	54,120	15,154	69,274	07 - - 11	Administrative and Program Specialist I
1	55,191	55,191	15,453	70,644	15 - - 11	Environmental Manager II
15		**659,571**	**184,680**	**844,251**		

FIRST TWO YEARS SCENARIO #1						
# FTE	Salary	Total	Fringe 28%	Total	Grade/Step	Position description
2	46,183	92,366	25,862	118,228	13 - - 11	Environmental Specialist II (2 planners, one with technology)
2	46,183	92,366	25,862	118,228	13 - - 11	Environmental Specialist II (Karst, Civil)
0	42,247	0	0	0		Financial & Audit Services Manager I
0	27,060	0	0	0		Administrative and Program Specialist I
1	55,191	55,191	15,453	70,644	15 - -11	Environmental Manager II
5		**239,923**	**67,177**	**307,100**		

FIRST TWO YEARS SCENARIO #2						
# FTE	Salary	Total	Fringe 28%	Total	Grade*	Position description
3	46,183	138,549	38,794	177,343	13 - - 11	Environmental Specialist II (2 planners, one with technology)
2	46,183	92,366	25,862	118,228	13 - - 11	Environmental Specialist II (Karst, Civil)
0	42,247	0	0	0		Financial & Audit Services Manager I
0	27,060	0	0	0		Administrative and Program Specialist I
1	55,191	55,191	15,453	70,644	15 - -11	Environmental Manager II
6		**286,106**	**80,109**	**366,215**		

ATTACHMENTS TO THE DRAFT:

LOCAL ASSISTANCE GRANT PROGRAM ALLOCATION CALCULATIONS

Localities	Tidewater	Expansion	Difference	%	Factor
Counties	29	36	7	24%	1.24
Cities	17	11	-6	-35%	0.65
Towns	38	57	19	150%	1.50
PDC/RCs	8	7	-1	** 100%	1.00
	92	111	19		** adjustment since 3 existing PDCS will have additional localities

		Phase I Development			Phase II Development		
	Factor	Amount	Allocation		Amount		Allocation
Counties	1.24	890,095	1,103,718		489,315		606,751
Cities	0.65	380,370	247,240		331,925		215,751
Towns	1.50	173,314	259,971		79,400		119,100
PDC/RCs	1.00	441,549	441,549		608,749		608,749
		1,885,328	2,052,478		1,509,389		1,550,351

Implementation Grants					Local Assistance Needs			
	Factor	Amount	Allocation			Tidewater		Expansion
Counties	1.24	3,383,512	4,195,555		Dev - I	1,885,328		2,052,478
Cities	0.65	1,071,034	696,172		Dev - II	1,509,389		1,550,351
Towns	1.50	217,465	326,198		Imp	5,420,699		5,966,613
PDC/RCs	1.00	748,688	748,688		TOTAL	8,815,416		9,569,442
		5,420,699	5,966,613		Annual*	734,618		797,454
					Based on twelve years			

NARRATIVE:
The parameters and guidance for the calculation of the local assistance grant program costs includes the following:

* Instead of doing extrapolation by the total number of localities and the total Tidewater allocation of grants over a twelve year period, the change per type of jurisdiction per the type of grant (Dev - I, Dev -II, Implementation) was calculated.

* From the annual allocation tables, it is noted that Phase I & II program development used grant funds followed by increases in funding for the implementation programs. Thus, over a 10 or 12 year period, the average grant amount is a reliable figure with a shift occurring in its use.

* Under Scenario #2, an emphasis upon Phase II Development would accelerate the demand for development funding; however, worked into Scenario #2 is a phasing in process whereby not all localities would need to accelerate a Phase II development program.

For the purpose of the analysis it is assumed that these factors off-set eachother, thus the annual average is not adjusted.